

G. R. S. IX-51

Previous references

File No 4-19

Serial Nos 16 23

1929-20
(Samling)

Later references.

P.H. 47-37 S. 1-2

P. 23

GENERAL AND REVENUE SECRETARIAT

P-132

PK Serial Nos. 16 23

Part B for August 1921.

SUBJECT

Influence of Railway
Construction on Public
Health

8(23) To The *Comptroller Mysore Gazette*
No L 932 of 11.8.21

Notifies the rules relating to the
Sanitary and medical supervision of labourers
on the occasion of Railway construction
in other large public works

Edmund R. K. ...
14.5.21
To The *Sanitary Commissioner*
Chief Eng. P. W. D. & Harbours
D.S. 7062, 1062 & 91
92

GENERAL AND REVENUE SECRETARIAT.

(Sanitary)

NOTES.

File No. 4-29

FILE HEADING.

Influence of Railway Construction on Public
Health

From

No.		Dated		Received
Diary No.		Enclos.	Spare Copies.	Serial No.

BRIEF ABSTRACT OF LETTER.

NOTES AND ORDERS.

Routine Notes.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

D. 1671

Influence of Railway Contract
on Public HealthThe Govt of India Circular
on the subject is subd
for perusal4951
2.6.193rd member
DewanPro
24-5-19.The circular may be sent to
the Sanitary Commissioner & the Local
Authorities for reference & suitable
action to be taken in respect of
the Railway lines in the
State.3) As regards the ~~employment of~~
labour, suitable sanitary
precautions are being taken
including by the W.P.W. & others
the employment of large labour.
Mist. Shell. being the the culled up
to take the sanitary arrangements
being proper measures before
the employment of labour & the
Sanitary Dept. & the Dept. of
Sanitation are perfectly carried out.

4) agree 1/2

30.6

5) For favour of further
actionNote - Should routine notes be written on small slips,
the notes must be copied, or slips pasted on
the form.

221

DEWAN'S OFFICE.

Recd. on JUN 25 1919

Reg. No. 8186.

221
3283
Sany File No. 4 of 1919.

Serial
No.

1) Submitted with a draft to the Superintendent Printing, Madras. After copies are received copies will be sent to the Chief Engineer, Sanitary Com^y & Deputy Com^y for necessary action.

5/9/19 21.9

5) Write to the Res^t to get copies of the Govt of India letter
me 9/7

1) Draft put up
4/7/19 21.9

1) Done
me 14/7

2 To Mr. J. A. Resident
No. 48 of 14.7.19

Request to obtain & forward 20 copies of the letter No. 4 dated 7/18/12 Sany 19 from the Secy. to the Govt of India, Dept^y of Edu (Sany) to the Secy to the Govt of Madras. Local Dnl Sept

3. From — do —, No. 6338 of 16.8.19 — Feb 15/19 of letter No. 4 of 7.1.19 refd to above & states that no more copies are available.

1) Submitted with reference to paras 2 & 3 above. Draft to the Chief Eng^r Sany Com^y &c are already put up.

13/8/19 If approved, a draft will be put up to the Sanitary Com^y forwarding a few copies of the Govt of India ~~Resolution~~ ^{Letter} asking him to submit, in consultation

Serial
No.

with the Agent for Rys Chief Engineer
Presidents of St Board, detailed
proposals on the lines contained in
the ~~Association~~ letter.

951
22.8.19

22/8

two
21/8

Second member of

4 To The Chief Engineer

No 5649 24.9.19.

14/8
24/8

Requests to intimate what
Sany arrangements P.W. "one
authorities propose to take
before the employment of
labour on large scale.

VVK

5

To

The Secy for Railways.

The Sany Comm.

The President of St Board.

No 5650-60. 24.9.19.

Requests to favour report with his opinion
as to the suitable action to be taken
in respect of the Ry lines in our State.

From the Secretary in missions in Mysore

21-3-19 and 22nd sept 1919.

6 State that no arrangements have been proposed

10/11
9/9
Publication BR. NO. 11
— SEP 1919

5523
8489

5

Serial
No.by the P.W.D. authorities & request further
instructions in this matter.12) Submitted for orders. May an reply (called
from the Chief Engineer be awaited?(The refer to valuation
in P.O. A is a mistake)Ld A
27/10

28 OCT 1919

21/10/1919

13) Yes

28/10/19

7. Draw, the President, District Board
Bangalore. No 61 bis 22 of 25 to 26
States that the suggestions made
re influence of Railway Construction
on public health, are well considered
and may be adopted subject to
such modifications as may be
necessary in the position of the
area affected.

14) Submitted for perusal. Other replies, may
be if approved, be awaited.

1.12.1919

15) Yes

27/12

8. Draw, the President, District Board, Chikaballapur
No C-178 of F-19-20 of 23.12.1919.

States that submits his opinion
on the influence of Railway
Construction on public health
stating that as far as M.S.R.L. is
no action seems necessary.

Ld A
27/12
PROTECTION BRANCH.
5-DEC 1919

Serial
No.

27-19

and as regards the Chic Kjaer
line. now under construction the
Railway authorities should
make adequate Sanitary
arrangements for the protection
of the working staff.

16) Submitted for perusal. Letter Refd.
to will, if approved, be awaited
21-20. BSS
3/1.

JW

3/1.

SECRETARIAT
III
PROTECTION BRANCH
5 JAN 1920

9.

From the President, St. Board, Shimoga
Munkur St.

Letter no. L.F. G.C. 776 of 19-20 dated 26.12.1919 requesting to send a copy of this Office
letter no. 5650-60 dated 4-9-1919 re.
the influence of Railway construction on
public health, for reference.

17) Submitted with a draft.

24. BSS
6.1.20 6/1

18) Issue

10.

To the President St. Board Shimoga
No. 15662 of 10.1.20
Forward a copy of this office letter no. 5650-60 of 4.9.19 as called for in 8.9.

From the President, St. Board, Munkur
No. L.F. G.C. 837/19-20. of 17th Jan 1920

SECRETARIAT
III
PROTECTION BRANCH
12 JAN 1920

San File No.

11071
13551
11089
of 1919Serial
No.

Forwarded his opinion on the
influence of railways construction
on public health.

15) Submitted ^{with a reply} for perusal. Replies
are due from Mysore
24/1/20 Kolar, Hassan, Shimoga
and Kadur.

Q.S.
24/1

20) Issue

Issued no 17233-78/27, 24/1/20

From the President of Board, Hassan
D.O. C 309-19 of 28th Jan 1920

States that the matter has been
referred to a sub-committee
and that a final reply will
be furnished by the end of
February.

2) Submitted for perusal

For
3/2/20-3/2

27/2/20

From the Engineer, Kolar
No. L.A. HC 39 of 31st Jan 1920

States that the matter will be
placed before the District Board
meeting on 7th inst and reply
sent soon after.

Please put up a copy of
minutes
24/1

Sms A

27/1/20

o P.O. L.A. BRANCH.
2-FEB 1920

Sms A

27/2/20

o P.O. L.A. BRANCH.
4-FEB 1920

13551 14089
14283
14403
45999
8
Jan. File No. 4

of 1919

Serial
No.

12

From, The President, B. Board, Mysore
No 589613 A 20 Feb 1920
19-20Forwarded his opinion on the
influence of Railway
Construction on public health
stating that the proposals made
on the lines were likely to be
very harmful to the health of
India may be given a trial

22) Submitted for perusal

To B.S.
5/2/20ccg
5/4/20

13

From The President, B. Board, Kolar
No. F. H. C. 39/19-20 A 23-2-20Re was that an other copy of the
Govt of India Resolution on the
influence of Railway Construction
on public health may be forwarded
to him.

23) Submitted with a reply

To B.S.
5/3/20

24) Issue

ccg
5/3/20

14

To The President, B. Board, Kolar
No 9 20727 A 8-3-20Forwarded herewith a copy of the
Govt of India Resolution on influence
of Railway Construction on public
health

Serial
No.

15

from the President M. Board Shim of
No. 4 C 44 / 1319-20 A 3-20 MacCh 20.
States forwarded a copy of the
letter from the M. Sanitary Officer
re measures for the prevention
of the harmful influence of Railway
Construction on public health
and asks that the measures
suggested therein may be
adopted.

25/ Submitted for perusal

26 Replies are due from Kolar,
T. P. P. Vessan and Kader.

16

From the President M. Board Kolar
No. KOC-30947 A 5-3-20.
Forwarded a copy of the Resolution
of the M. Board approving of the
report of the Sub Committee re
influence of Railway Construction
on public health.

27/ Submitted for perusal

9/10/20 - 688
9/10/20 - 107

Dec 10/20.

Set
10/20
17 MAR 1920

17

from the President M. Board Kolar
No. L. A. C. 39/19-20 A 2-3-20.
Requests that a copy of the copy of
Judicial Resolution in the influence.

1659
16/3/17725
19563

10

Serial
No.

of Railways Construction in
public health - was forwarded to
him

28) Submitted. A copy was forwarded
in this office no 920727 Ath 18/3/20.
190 - 888 29) Refrains are still due from (Kolar)
18/3/20 15/3/20 Reminders may issue if necessary
30)

31) Find with a draft of reminders 15/3/20
14/3 - 888
16/3 - 16/3 32) Issue
17/3/20

Sanes 2/690-1 8/20-320

San
2/17

18

From the Secretary for Railways
No 1746. Dth April 1920

Forwarded a copy of the Sup^r Engrs
letter No 10 in the influence
of Railways Construction
in public health.

33) Submitted for perusal.

10/4/20 12/4/20

12/4/20

19

From the Dy Commr. Kolar
No 1113 53 7. 5th April 1920
19/20

States that the 10th Board are in
for agreement with the views of the
Sang Commr with the Govt of India
re the influence of railways.

24 MAR 1920

San A
12/4

12 APR 1920

Serial
No.

Construction in public health.

34) Submitted for perusal. Reply is yet
due from Kader.No. B88
15/6/20. 16/6Dec
16/4/20.

35) Submitted with a document.

No. B88
17/6/20. 17/636) Issue
Issued 240 418/20/4. Dec
17/4/20

20 From the chief engineer in Mysore

No. M. 119-05 of 10th May 1920

Submits copy of letter from the Chief
Engineer, Cauvery Valley Irrigation. The
Appt Mysore Railway in the matter.37) Submitted. The copy of the letter referred to in the
enclosure has not been received. The Dy.Comm. Kader. It has been reminded on 20.6.20
that and his reply will be awaited if appd.No. B88
15.5.20 17/538) No. Dec
17/5/2039) The reply from the Dy. Comm. Kader. It
has not yet been received.

Issued with a DO reminder.

No. B88
16/11 26/11/2040) Issue
Issued 10592/27-11-20. Dec
27/11/2021 From the D.C. Kader. It No. H.C. 163 of 15.1.21 —
States that the ^{proposed} ^{consideration of} ~~proposed~~ ^{revised} ^{and} ^{long} arrangements regarding
the construction of large works including Railways for Com-
mittee is an excellent one & may be adopted & that the cost

Serial
No.

of filling up or ~~digging~~ draining of borrow-pits should be met by the Dept. of which the work is undertaken.

41) Submitted with a Statement giving briefly the opinions of the President of St. Bd., Ry. Secy & Chief Engineer on the subject.

42) When opinions were called for 22/1/21 in this office letter of 4-9-20 on the part of India Association, the Sanitary Commr. wrote back to say, in his letter of 22-9-20. that the P.W.D. have reported no arrangements & asked for further information. As his opinion has not been received, a draft will be put up, if approved, inviting his attention to our letter & calling for his opinion @ a very early date.

b8b
recd

43) Yes

secy
25/1/21

44) Draft put up
b8b
25/1/21

45) Issued
secy
26/1/21

Issued 20.1.48 41 D. 29/1

46) No reply has yet been received from the
Sany Commr

47) Issued under S.O. reminder

b8b
21/1/21

48) Issued

Issued 16434/21/21 21/2/21

Serial
No.

22

From the San'y. Comr, no G.C. 80-6 of 11.4.21 —
Submits for consideration & order draft rules relating
to the San'y. & med. supervision of labour on the occasion
of railway construction or other large public works.
Submitted. Proposals suggested in the draft rules, have
been briefly given in the statement ~~prepared~~ ref. to in para 4
of the notes.

5 The rules framed by the San'y.
13/4/21 Comr. have been sent to the
Secy.
14/4 (Rev. Secy.)

Secy.
15/4/21.

5378-46

18.4.21

2nd member)

51 The P.W.D. & the Rev. Secretaries
may be u.o. consulted.

18.4.21

(This should
have been
subd. to 3rd
member —
19.4.21.)

Recd
19.4.21

5938

19.4.21

3rd member)

Wt.

20/4/21

19.4.21

u.o. no 61 of 21
of 21-4-21.

PROTECTION BRANCH.
21 APR 1921

52 Forwarded with compliments, to the Secretary,
P.W.D. for favour of opinion.

20/4/21

By Order,
De Subbarayappa,
For Revenue Secy. to Govt.

26 APR 192

no. 860 sales 25th April 1921.

54

55

56

57

Secretary to Government,
Public Works Department.

Mysore,
24th April 1921.

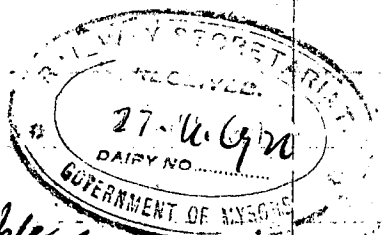
58 Forwarded with compliments to the Secretary
for Railways for favour of opinion.

Buy Order,

Subbaraya

For Rev. Secy. - W. G. A.

26/4/21.



W. O. No. 63-21

0.264.21

-III-

26 APR 1921

Railway Secretariat.

San File No.

WD 1680-GPB--8,000--15-3-21

4 of 1929.

Serial
No.

26.6.10.23 1728/4/21

GEN & REV. SEC.

29 APR 1921

69970

Jan
29/4

59 I am in sympathy with the proposals but consider that the Committee suggested in para 3 of the draft rules is larger than is necessary.

60 In the case of a railway, the discussions and enquiries on the ground may be expected to take up a good deal of time and we not think that important administrative officers like the Senior Surgeon and the Chief Engineer, P.W.D. are required in addition to the Sanitary Commissioner and the Chief Engineer of the Railway.

61 In many cases ideal sanitary conditions can only be obtained at prohibitive expense and a compromise has to be arrived at between the Medical and the Railway authorities. All this may be expected to occupy time and if para 12 is to be accepted may delay the commencement of a work unduly.

62 It is almost impossible to say beforehand what permanent effect the construction of a railway will have on drainage and water-logging. It is only after the railway has been built, as a rule, that defects of this sort come to notice and it is generally not difficult to effect improvements. So far, I have heard no complaints about the

Railway Secretariat.

San File No.

21367

WD 1630-GPB--3,000--15-3-21

4 of 1927.

66

Serial
No.

Mysore-Arsikere Railway or the narrow gauge lines
and I do not think there is much danger from --
risks of this sort in an undulating country like
Mysore. Borrow pits, unless properly drained, are
of course objectionable and should be avoided as
much as possible near towns or within limits of
stations. Medical advice and approval are desi-
rable before sites of staff quarters and wells for
drinking water are definitely decided on and I
think that the Committee will serve a useful --
purpose if its proceedings, which may affect the
estimates considerably, are held in ample time be-
fore construction is decided on.

Revenue Secretary
with compliments.

Cow
28/4/21

Submitted for orders.

(Rev. Secy.)

29/4/21

6246
5.5.21

3rd member)

4.5.21

63 In case of Railway works, the presence
of the Chief Engineer is not necessary. In
the presence of the Chief Engineer Railway
with guide engineers in case of railway. In
the large D.W. works, the Chief Engineer's presence

Serial
No.

is necessary. The suggestion of this being referred
to the committee may be adopted. The suggestion
refers to the presence of the committee before as
he has to make arrangements for moral
and physical. But the desired moral
and physical part and not to a member
as he will be represented by the committee
and the committee.

by these and draft the rules accordingly
to submit.

65 Draft rules revised as directed & submitted.

for approval.
18/5/21

(Hq. 2nd Member)

21/5/21

23/5/21

23/5/21

23/5/21

Dewan) 66 by a circular to
in 1st member also
in 1st part to Rep & O. 2. 66/5

27.5.21

(1st member)

30.5.21

6336-333

30.5.21.

67 The order seems to be in order now. I have
made a few minor corrections here & there. Before

Serial
No.

the rules issue. fair copies of the same may be sent to the Secy. P.W.D. & Ry. for concurrence. This will avoid any necessity for reference or modification at a later stage.

Recd
31.5.21. *hm*

68 A draft note is put up.
If approved, it will be sent to Secy. P.W.D. & Ry. ^{may} officially before issue.

QSS
1/6
1/6/21

Typed copy may be put up.

QSS
1/6/21.

Typed copy put up.

QSS
3/6
3/6/21

69 Forwarded, with compliments, to the Secretary, P.W.D. for favour of ^{concurrence.} ~~concurrence.~~

By Order,

Desubbarayappa,

for Rev. Secy. to Govt.

3/6/21.

U.O. No. 67 of 20-4-21
CHIEF SECRETARY
PROTECTION BRANCH
E 6 JUN 1921

G. R. S. III-2,

General and Revenue
Secretariat.

San File No.

21367

4

of 1918-20

19

Serial
No.

70

Returned, with compliments-

2. The rules as drafted are suitable and may be adopted.

R. Sundaram
For Secretary to Government,
Public Works Department.

T.R.S./24-6.

Bangalore
25 June 21

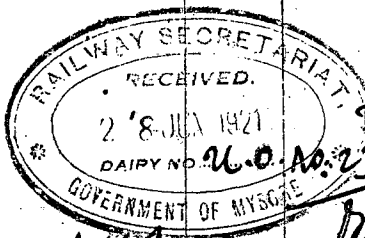
u.o. no 67
of 27.6.21

71 Forwarded with compliments to the Secretary
for Railways for favour of concurrence

By Order,

Subbarayappa

for Revenue Secy to Govt.



2576/21

29/6/21

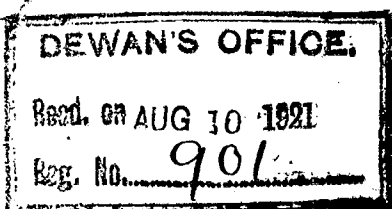
The draft rules are accepted in this Department

GEN & REV. SECT.

29 JUN 1921

5388

Secretary
Secy to Railways



submit
By 73 may the draft rules of the Govt
2.8.21

Rev Secy

member
to Dewan

956
5.8.21

NOTE—Contn. sheet.

11-8-21
11-8-21
11-8-21

Sany File No. 4 of 1919.

Serial
No.

23

To The Comptroller Mysore Gazette.
No 1932 Df 16-8-1921Notifies the rules relating to
the Sany and Medical Supervision
of labour on the occasion of Railway
Construction or other large public work.
ToThe Sany Commr in Mysore
The Senior Surgeon

The Chief Engineer P. W. & S.

The Engineer in charge for Railways.

The Deputy Commr of S. B.

No 1069-80 Df 24.8.21

Forward Copy of the
above.B 26/8
DM

Statement giving briefly the opinions of the Presidents of St. Boards, Chief Engrs, Ry. Sec. & Sany. Comrs on the subject of the influence of railway construction on public health, especially the questions involved in (1) large aggregations of labour (2) the effect of borrow-pits & (3) the interference of embankments with the natural drainage of the Country.

[illegible]

Ry. Secy.

States that burrow pits should not be excavated within the Pub Boundary of any town, & that the draining of existing burrows should be under control of Ry. Secy of the Municipalities, so that adequate & proper medical aid should be provided to look to the laying of cool camps, Sanj. arrangements & treating the sick, & good drinking water shd be provided by sinking wells where regular water supply can not be had.

Chief Engr.

Submits a copy of the rules framed in consultation with the Sanj. Comr, from which it will be seen that all the Sanj. precautions referred to in the Memo. Govt. order have been taken & continue to be taken.

Sanj. Comr.

Submits for consideration orders of Govt. draft rules & ^{to} ~~minimise~~ ^{the} risks of the spread of communicable diseases, proposing the constitution of a Committee consisting of (1) Senior Surgeon, (2) Sanj. Comr, (3) Chief Engr, (4) Chief Engr, Ry. Const. Dept, (5) D.C. of the Dt. concerned (6) D. Quail & Sanj. offr, (2) the medical inspection of the Dt. Sanj. Offr & the Sanj. Comr, of the line to see that the health conditions of the labour force are satisfactory, (3) that as a rule, no railway operations or other large public works should be started before orders of Govt are obtained on the proposals formulated by the Committee (6) that when it is believed that the health of the people of a town or village is prejudicially affected by the existence of burrow pits or by serious obstruction to the drainage of the area, the Sanj. Comr may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise of filling up the burrow pits or draining the excavations & that when such a scheme is proposed in this direction likely to involve expenditure on the Dty, the requisition to the Ry. Authorities to carry out the drainage or reclamation should be made by the local authority and the previous sanction of Govt.

24/1/27

Draft Rules (revised with the 1919)

The following rules are issued with a view to minimise the risks of the spread of communicable diseases as the result of firstly: the uncontrolled con-
gregation of labour on occasions when ^(at) railway or
~~other~~ large construction works are undertaken and
secondly, the changes in the natural condition of the
locally occasioned by the work such as embank-
ments, impediments to natural drainage borrow pits &c

2. The aim is to secure a close co-ordination between the Sanitary Dept. and the authority responsible for the construction work so as to ensure that the necessary for proper arrangements for the medical & Sanitary supervision of labour is not overlooked. Equally when the question is one of the prevention or the removal of im-
pediments to natural drainage or of other conditions favourable to ill-health, the best results will be secured by consultation among the departmental officers and discussions of the various interests involved.

3. For this purpose, a Committee will be consti-
tuted consisting of:-

1. The Senior Surgeon
2. " San'y. Commr.
3. " Chief Engineer
4. " ^{or} ~~Chief Engr.~~ ^{in chief} of the ~~Engrs.~~ ^{as the case may be} Construction Dept.
- 4 5. Dy Commr. of the D^y through which the railway passes or in which the construction work is undertaken

Note:- In the case of Railway works, the Chief Engr. need not be a member of the Committee. In the case of Civil Public works the Chief Engr. of the "Const." Dept. need not be a member.

4. As soon as the Construction of any portion of railway line & the route to be followed have been decided upon, the ^{Engineers in charge of} Chief Engr, Ry. Construction Works will arrange to convene a meeting of the Committee.

5. The Committee will meet make study of the routes along which the line is to be constructed & will carefully investigate the following points: -

- (a) the general health conditions of the country through which the line travels, particularly as regards malaria
- (b) the medical & sanitary staff that will be required,
- (c) the places where labour camps should be arranged and what localities to avoid
- (d) the sources of water supply for the labour forces and
- (e) the arrangements that should be made in the various places along the line to prevent interference with natural drainage that might be caused by the Railway embankments.

6. The Committee will also study the subject of the influence of borrow pits on malaria & the District will make such suggestions as circumstances demand.

7. It is open to the Committee to advise what villages in the neighbourhood are likely be centres of spread of disease and to provide

for all regular inspection and improvement of these.

8 The St Sanitary offr and the Sany. Comm. should periodically inspect the line to see that the health conditions of the labor force are satisfactory and to make any recommendations that may be found necessary.

9 The Committee will record their opinion and report to the ^{Engineers in chief for} ~~Chief Engr~~ P's Construction Dept., sending a copy of the report at the same time to the Chief Sec. to Govt.

10 Among other things, the Committee should consider the possibility of water logging in the area due to the interruptions of the natural flow of water by embankments, canals, &c, and advise upon the best means of avoiding such possibility.

11. Procedure similar to that outlined in the preceding paragraphs should be adopted in case of ~~other~~ large public works (^{other} than railways, the officer responsible to convene the meeting & to obtain the advice of the Committee being, in this case, the Chief Engineer, P. W. Dept.).

12. As soon as the construction of a large work is decided upon, a meeting of the Committee should be convened and proposals

formulated. Work may be started pending Govt orders, but the arrangements from the very commencement of the work should be in accordance with the proposals.

13. In the case of large works controlled & managed by private agencies, the Sany. Commr. should in consultation with the Senior Surgeon take such steps as are necessary to ensure proper medical & sanitary arrangements during the aggregation of labour.

14. When there is reason to believe that the health of the people of a particular town or village is prejudicially affected by the existence of borrow pits or by serious obstruction to the natural drainage of the area, the Sany. Commr. may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise for filling up the borrow pits or draining the excavations. When a scheme is proposed in this direction likely to impose expenditure on the Railway, the requisition to the Ry. Authorities to carry out the drainage or reclamation should be made by the local authority with the previous sanction of Govt.

15. In cases where a large labour force is stationed permanently or for a long time

at any place in connection with large industries,
it shall be the duty of the San'y. Comr. to make
inspections from time to time and bring to the
notice of Govt. deficiencies, if any, in the Sanitary
arrangements made and in the conditions under
which labour is housed and controlled

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Government of Madras

LOCAL & MUNICIPAL DEPARTMENT (LOCAL).

G.O. No. 521 L., 21st April 1919

Railway.

Communicating to all local boards and municipal councils the resolution of the Government of India on the subject of the influence of — construction on public health.

READ—the following paper :—

Letter—from the Hon'ble Mr. H. SHARP, C.S.I., C.I.E., Officiating Secretary to the Government of India, Department of Education (Sanitary).

To—the Secretary to the Government of Madras, Local and Municipal Department.

Dated—Delhi, the 7th/18th January 1919.

No.—4.

I am directed to address you on the subject of the influence of railway construction on public health, especially the questions involved in large aggregations of labour, the effect of borrow pits and the interference of embankments with the natural drainage of the country. These subjects have been engaging the attention of the Government of India for some time. Copies of a note by Lieutenant-Colonel Clemesha, the Sanitary Commissioner with the Government of India, dated 27th September 1916, and of a circular of the Railway Board, No. 430-W-16, dated the 5th December 1916, are enclosed for information.

2. The Sanitary Commissioner lays special emphasis on the necessity of the control of congregated labour on railway construction and other large public works and in his opinion outbreaks of malaria and the general unhealthiness of large tracts of country are directly due to the deficient sanitary arrangements made during the aggregation of labour and the unsatisfactory conditions under which labour is housed and controlled. He suggests that greater co-ordination in respect of sanitary arrangements is necessary between the Sanitary Department and those responsible for the construction of railway and other works. To secure this object he has, in paragraph 11 of his note, outlined the constitution and functions of a committee. His suggestion for the appointment of a committee when railway and other large public works are taken in hand has the approval of the Government of India. The constitution of the committee has been criticised by several Railway Administrations as being too elaborate. This, however, is a matter of detail, and the Government of India would leave to the local Governments, when they receive intimation that railway operations or other large public works are imminent, to settle in each case in consultation with the authorities concerned the constitution and the functions of the committee. The Railway Administrations have also accepted the proposals put forward by the Sanitary Commissioner that adequate arrangements for medical supervision of labour and for ensuring proper sanitary conditions should be made during construction; and the Government of India trust that similar steps will be taken in the case of public works under the control of the Public Works and other departments of Government. It would, no doubt, be desirable to formulate proposals and to obtain the necessary sanction before the work began. In the case of large works, controlled and managed by private agencies, steps should be taken to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked.

3. It will be observed that the Sanitary Commissioner is of opinion that the results of borrow pits and the blocking of drainage on the health of local inhabitants have been exaggerated. He thinks, however, that in some areas borrow pits are undoubtedly the cause of a good deal of malaria, and that in certain cases railway

lines have caused serious obstruction to drainage; and he considers that in the neighbourhood of towns and railway stations borrow pits are objectionable. The Railway Administrations have generally agreed that borrow pits should not be dug within the boundaries of considerable towns and railway stations and that, when practicable, railway excavations should be made so as to drain off promptly and not result in stagnation near inhabited areas. The Railway Administrations have also accepted the suggestion made in the circular letter of the Railway Board that railways and local bodies should share the cost of filling up existing borrow pits and of draining all excavations in equal proportions, though reservations have been made by certain railways that they should not be required to carry out drainage or reclamation when for sufficient reasons this is not practicable.

4. The municipalities cannot legally be called upon to bear half or any portion of the cost of filling up or draining the existing borrow pits and excavations dug by railways and the provisions of the Railway Act do not deprive municipalities of their statutory powers to require railways to fill up or drain excavations prejudicial to health. It is also desirable that when a scheme is proposed in this direction the Sanitary Commissioner of the Province should be consulted as to its necessity in order that no unnecessary expenditure may be incurred. I am to point out that expenditure on any scheme for drainage and reclamation incurred by the railway would be useless if the municipality proceeded against the railway alone without taking similar action with regard to other places injurious to health and that, as pointed out by the Sanitary Commissioner, the filling up of borrow pits would not in all cases assist in the prevention of malaria. The Government of India trust to the local bodies to exercise their legal powers in such a way as not to call upon the railways to incur expenditure which would not serve a useful purpose.

5. It has been suggested that in some provinces railway companies should be encouraged to dig deep tanks instead of borrow pits in inhabited areas. In this connexion attention is invited to the remarks made in page 11 of Major Fry's first report on Malaria in Bengal to the effect that in certain areas deep tanks and borrow pits which contained sufficient water all the year round to enable the fish population to survive and which were free from weeds were rarely important as breeding places for mosquitos. This statement is of course not applicable to all parts of India. But when it is applicable and where such deep tanks and borrow pits supply a local need, it is believed that the local bodies will be willing to contribute a fair share of the extra cost involved. I am to commend the possibilities of this suggestion to the notice of the local Governments.

6. I am further to observe that it is generally agreed that the water-logging in certain areas is due to the interruptions of the natural flow of water by embankments, canals, etc., which are insufficiently provided with waterways and that by such water-logging both the health of the people and, in certain large tracts of country, the productivity of the soil are prejudicially affected. Every endeavour should be made to see that natural drainage is not impeded and that, where it is already impeded, such impediments should be removed. This is one of the points which the Sanitary Commissioner in paragraph 11(f) of his note has indicated as requiring attention when a new line is under consideration, but equally when the question is one of the removal of existing impediments to drainage the best results will be secured by consultation and discussion between the various interests concerned.

ENCLOSURE

Letter—from the Secretary, Railway Board.

To—the Agents, Assam-Bengal, Barak Light, Bengal and North-Western, Bengal-Nagpur, Great Indian Peninsula, Guzerat, Madras and Southern Mahratta, North-Western, Oudh and Rohilkhand, Rohilkhand and Kumaon and South Indian Railways, Agent and Chief Engineer, His Highness the Nizam's Guaranteed State Railway, (through the Hon'ble the Resident at Hyderabad), Manager, Jodhpur-Bikaner Railways.

Dated—the 5th December 1916.

No. 430-W.

I am directed to inform you that the question of the influence of railway construction on malaria and the measures to be adopted for the prevention of the spread of the disease have been under the consideration of the Government of India.

2. The Sanitary Commissioner with the Government of India, who was consulted in the matter, has recorded his views in a note on the subject, and I am to enclose a copy of his note for your consideration. It will be seen from this note that the Sanitary Commissioner holds:—

- (a) that in some, but not in all, areas borrow pits cause malaria.
- (b) that blocking of drains as a cause of malaria has been exaggerated; and,
- (c) that malaria is due mainly to the congregation of labour employed on railway construction or other large works.

3. To meet the danger referred to in (c) above, the Sanitary Commissioner considers that greater co-ordination is necessary between the Sanitary Department and those responsible for the construction of railways or other works, and he outlines in paragraph 11 of his note the best method by which co-operation between these authorities could be secured with respect to sanitary arrangements on such large works.

4. As regards (a) and (b) in paragraph 2, it has been suggested that, within the municipal boundaries of any town of over ten thousand inhabitants, no new borrow pits should be dug by railways, and that the existing borrow pits, if any should be drained or reclaimed as occasion offers in consultation with the municipal authorities; half the cost of any scheme of drainage or reclamation that might be agreed upon being borne by the railway and the balance by the local body concerned.

5. I am now to ask that the Railway Board may be favoured, as soon as possible, with your views on the following points:—

- (1) whether railways are prepared to accept some general principle of the kind put forward in paragraph 4;
- (2) whether you agree that railway excavations should, where possible, be made in such a way as to drain promptly and completely into the nearest watercourse, and not result in stagnation of water in the neighbourhood of inhabited areas;
- (3) whether the Sanitary Commissioner's proposals on the subject of medical supervision of labour employed on construction as to the sanitary arrangements of works are such that they can be accepted.

6. The whole matter is clearly one of great importance and the Railway Board will be glad to have your views on it.

Serial No. 1/1.

Note on the influence of railway construction on malaria.

The subject of the influence of railway construction on the health of a district is a very large and extremely important one, and it will be necessary to make a few preliminary remarks of a general nature.

2. The issues that arise from the question of borrow pits and obstruction to drainage are but portions of a very much larger problem with which we are faced, and I am strongly of opinion that the best course will be to deal now with the whole subject rather than taking it up piecemeal. How large and important the influence of railway construction on the health of a country may be, is extremely well set forth in an important article by Bentley and Christophers. This article is of such importance that, in my

Transactions of the Bombay Medical Congress, 1909. opinion, copies of it should have been put into the hands of all large employers of labour at the time of its publication. I recommend it to the most earnest attention of the Members of the Railway Board.

3. It is unnecessary for me to repeat the general lines of argument of the paper, but it will be observed that, in several places, reference is made to the deficient arrangements for prevention of disease made by railway and other employers of labour resulting in ill-health to large tracts of country. I do not think that it can be denied:—

(1) That owing to deficient sanitary arrangements, or other causes, during the aggregation of labour for construction work, epidemics of malaria and other diseases have occurred, and very large tracts of country have been rendered extremely unhealthy.

(2) That railway and other authorities, not infrequently, incur unnecessary expenditure by not taking expert advice and making adequate sanitary arrangements for the protection of their working staff in unhealthy districts. An unnecessarily large amount of sickness and death amongst their employees thereby results and wholesale desertion of the labour force may occur.

(3) That alterations in the natural condition of a locality occasioned by the construction of borrow pits and the blocking of drainage with embankments sometimes occasions the ill-health of the rural population.

These may appear, at first sight, to be very dogmatic assertions, but a careful survey of the facts of the case will carry conviction as to their general accuracy. There can be no doubt whatever that, in certain cases, the advent of a railway has resulted in a marked deterioration in the health of the community which it serves, and it is only by careful research and application of modern methods of sanitation that such untoward happenings can be avoided in the future.

Probably, the most important factor in such cases is the one mentioned in Bentley and Christophers' paper, namely, that railway officers, up to the present, have not recognized the danger incidental to any aggregation of labour in tropical countries.

4. Before discussing this matter further, it will be well to give certain concrete examples illustrative of my main contentions.

(1). As pointed out by Christophers and Bentley, it is now fairly certain that the extraordinary epidemic of malaria which occurred in Lower Bengal which was known as the Burdwan fever epidemic was due to the construction and opening of the railway between Calcutta and Burdwan. There probably were other factors concerned, such as the river bunds along the banks of the Damodar, but in the light of the most modern research on malaria probably the deciding factor in the case was the aggregation of labour and the expansion of trade caused by the opening of the line. The results of this epidemic are still with us. In parts of Murshidabad, Nadia, Jessore and Burdwan malaria is still hyper-endemic, and it seems almost impossible to break the vicious circle when one recognises that the natural conditions are all favourable to malaria.

(2) The case of Ennur is another example of the result of the deterioration of health of a settlement on account of railway enterprise. Not very long ago, before the railway was constructed, Ennur was one of the health-resorts of Madras. Since the construction of the railway bridge over the backwater the place has been practically uninhabitable on account of the prevalence of malaria. All the bungalows are now unoccupied. The railway staff at Ennur was allowed to live some miles further up the line on account of the great prevalence of the disease. Prior to the starting of the railway construction works there were a few healthy fishermen in the neighbourhood and a large salt factory. Anopheles of a deadly character must have even then been present but there was no 'reservoir of parasites.' The advent of coolie labour for the construction of the bridge supplied this deficiency in the malaria cycle, and the anopheles did the rest. The place is still very malarious in spite of, endeavours on the part of Government of Madras to lessen the number of parasite-bearers by wholesale treatment with quinine.

It may be objected that the above two instances are very ancient and occurred prior to the proper understanding of the malaria problem, and that the explanation given is open to certain criticisms. It is desirable therefore to give some more modern instances.

(3) Amongst these is the epidemic of malaria in the Rajshahi division which occurred between the years of 1905 and 1909 at the time of the construction of the railway line between Godagarighat and Katihar. This epidemic was carefully investigated by a Sanitary Officer, namely, Major McCombie Young, who demonstrated that there was a distinct correlation between construction of the railway and the amount of malaria in the districts concerned. The report is available for anyone who wishes to see it. Major Young also pointed out that the mortality amongst the coolies engaged on the work was very high.

(4) An instance of the serious results of lack of knowledge of the guiding principles of malaria came to my notice in 1914 in the arrangements for the construction of the line from Kishanganj to Siliguri. The bungalows for the Chief Construction Engineer, the Assistant Engineer, and the workshop were situated on what appeared to be a very suitable site on the banks of a small river. As a result of this, during the following malaria season the Chief Engineer and his wife, the Assistant Engineer and his wife, and every member of the workshop staff were down with malaria. The provincial preventive staff consisted of myself and two expert malaria officers, who were never consulted in the selection of this site; any of us would have been able to warn the officer responsible for the work that in the Terai, the banks of streams, were absolutely deadly at certain times of the year. At this date also the only medical staff that was considered necessary for a line some 70 miles in length through probably the most malarious country in the whole of India was one hospital assistant. The amount of sickness and desertion on the part of coolie labour was very high indeed, and the Railway Board are probably better acquainted than I am with the large cost of the work due to delays and enhanced rates to contractors caused by lack of proper medical arrangements.

(5) The final example of defective sanitary arrangements in connexion with construction work to which I desire to draw attention is that of the Kidderpur Bracebridge Hall dock extension. I do not know whether this combined railway and dock extension scheme comes directly under the cognisance of the Railway Board or not, but the necessity for proper organisation of labour forces is extremely well exemplified in this particular case.

At present a comparatively small labour force is employed because the work is largely confined to the construction of dock gates and river frontage works, for which highly paid and skilled labour is necessary. When the ordinary excavation work of the main dock is commenced a large force of coolies will be required. I have made a careful survey of the whole locality and of the conditions of housing, the small labour force, which is at present employed, and I may say that the conditions under which these coolies live are extremely bad and require to be changed. The malaria survey of the district shows that there are mosquito breeding places in any number. Anopheline mosquitos also abound. The existing labour force is small; is very well paid, has been located on these sites for a considerable period, and does not contain a large percentage of parasite-carriers. That is the reason why malaria is not at present rife in the neighbourhood, but the advent of 8 to 10 thousand coolies from other parts of India, bringing

with them a fair percentage of malaria parasite-bearers, is just one factor necessary to start a violent epidemic as it did in Bombay in 1908. It is unnecessary for me to go here into details as to what should be done to prevent this evil. The point is that close co-ordination between the Engineering authorities undertaking the work and the Sanitary Department is necessary, if disaster is to be avoided.

5. I think the above instances will be taken as sufficient to prove my point. They could be multiplied almost indefinitely by hunting up the records of Civil Surgeons and Sanitary Officers' reports. Allusion has been made to the epidemic of malaria in Bombay city in 1908. The Railway Board may not be in any way responsible for this, but it is an example of the careless aggregation of labour which brought in its train very dire results. Finally the old idea that cutting the earth and turning up the soil was the cause of malaria is now adequately explained by modern workers as due entirely to the unsatisfactory conditions under which the coolies were housed and looked after. It may be objected that quite a large proportion of the instances given above occurred in Bengal, which is notoriously a malarious country and, therefore, more liable to serious accidents of this nature. I am prepared to admit the force of this contention, but the main reason why Bengal instances are largely chosen is that they are best known to me. I have no doubt in my own mind that conditions are more favourable for serious and widespread epidemics in that Province and in Assam than in most parts of India, but at the same time similar smaller and less important accidents are not unusual throughout the whole of India, and in touring about one frequently hears of them.

6. I do not propose to deal at length with the subject of cholera on railway construction works because malarial epidemics undoubtedly present the greater difficulties and any organisation which is prepared to cope with these will certainly be competent to remove most, if not all, of the dangers of spreading cholera. That cholera is a frequent visitant on railway construction must be admitted: one has only to meet construction engineers from any parts of India to hear stories of epidemics amongst railway coolies which never find their way into any Government report or against which preventive measures are never undertaken until they have occurred. Very likely there has been an improvement in this direction in recent years, but more is necessary.

7. After so much adverse criticisms of defective methods, it is pleasant to be able to speak most highly of the excellent sanitary arrangements that were made for the construction of the Lower Ganges Bridge. There a skilled and energetic medical officer was appointed, he was given a large preventive staff; he was made a sort of Civil Surgeon of the districts adjoining his work and every possible care was taken of everybody on the work. The Medical Officer in charge worked in co-operation with the Sanitary Commissioner of the Province and received additional help from him in the matter of a Deputy Sanitary Commissioner to advise him on anti-malarial work, and financial assistance was also forthcoming from the local Government. The results of these sound arrangements are better known to the Railway Board than they are to me. The work of construction was completed well in advance of the promised time and, I believe I am correct in saying, with a considerable saving on the budget estimate. But these excellent arrangements should be the rule and not the exception.

8. Before closing I wish to say a few words on the relative importance of each of these three main criticisms given in the early part of this note. A careful perusal of Christophers and Bentley's paper will show the stress they lay on the importance of the aggregation of labour. In all probability this is by far the most important factor in the spread of disease; a great deal of the agitation in the lay press against blocking of drainage and manufacturing of borrow pits is wrong; in point of fact, the results they complain about should in reality be brought under this first head. Of course the dangers resulting from the careless aggregation of labour vary enormously in different parts of this country, but practically in no part of the country can the present unsatisfactory arrangements of collecting thousands of coolies together without adequate sanitary precautions or skilled advice be allowed to continue. The results of carelessness under this head are so far-reaching that no amount of trouble and expense must be spared in order to prevent accidents. It is impossible to estimate either the financial loss or the amount of suffering to a large number of innocent individuals that results from a widespread epidemic of malaria. As already pointed out, we are probably still suffering in Bengal from the direct results of an epidemic which was primarily started by the construction of the line between Calcutta and Burdwan in the fifties.

9. As regards the second allegation, it will probably be admitted by all in a position to judge that there is nothing so expensive as ill-health among the labour forces on the construction of a line; it is impossible to estimate the financial loss to Government of say, two or three good construction engineers being invalidated home on account of a preventable disease. In how many instances are estimates exceeded and difficulties multiplied tenfold due to sickness amongst the labour? Therefore, from a business point of view, everything should be done to maintain the whole of the employes, from the Chief Engineer down to the lowest paid coolie on the line in a good and efficient state of health.

10. With regard to the results caused by borrow pits and blocking of drainage, I consider that it is impossible to make any general statement: what is true in one place is hopelessly incorrect for another. The blockage of drainage is, in many parts of the country, a very serious affair, but I am inclined to believe that the amount of obstruction that is caused by railway lines

that have been constructed, say three years previously, is greatly exaggerated. Of course, it is a sort of parrot cry that the advent of railways always obstructs local drainage. As a matter of fact investigation of many of the lines shows that this is not the case, and the damage to health which is connected with the railways is probably, as already pointed out, due to the first cause and not to the obstruction of the drainage itself. Instances have, however, been brought to my notice where serious obstruction has occurred, and, I regret to say, where it has taken years to get the matter remedied. Very much the same remarks apply to borrow pits. In some parts of the country, borrow pits are most objectionable and are undoubtedly the cause of a good deal of malaria, particularly in such places as round the city of Delhi and Amritsar, in the Doab in the United Provinces, and in other places where flooding and stagnation of water appear to be powerful factors. They are, I consider, a powerful factor in the spread of the disease along the line from Chittagong to Chandpur. On the other hand, there can be little doubt that in many places the borrow pits can have little influence on the health of the local inhabitants. I am inclined to think that, in a marshy country like Bengal, their influence on the general health is greatly exaggerated, and that careful investigation would prove this. As in all malaria problems, it is impossible to lay down hard and fast rules, and the only way of solving the problem is to have a careful inquiry made by a skilled officer in places where there may be any reasonable doubt. In the neighbourhood of towns, and close vicinity of railway stations, it is safe to say that borrow pits are objectionable and undesirable. More than this I do not want to say at present.

11. Within the last decade, the science of epidemiology and preventive medicine have made enormous strides. Much of the work that has been done is naturally not known to Railway and Irrigation authorities and other large employers of labour, but the time has now come when co-ordination between these and the Sanitary Department is pre-eminently desirable. I consider that the best way of attaining this object will be as follows:—

(1) As soon as the Railway Board have decided to construct any portion of a line and have decided on the route to be followed, information shall be given by the Railway Administration to the local Government concerned who will arrange to convene a committee consisting of—

- (i) Sanitary Commissioner of the Province,
- (ii) Chief Medical Officer of the Railway Company,
- (iii) Chief Engineer of the Railway, who is to carry out the construction work
- (iv) Chief Engineer, Irrigation Department of the Province,
- (v) Commissioner of the division through which the railway travels or Collector of the district and the Civil Surgeon as may be thought desirable,
- (vi) The Malaria Research Officer of the Province.

(2) This committee will meet, make study of the routes along which the line is to be constructed and will carefully investigate the following points: (they will record their opinion and will report to the Railway Board, and if necessary, to the local Government)—

- (a) The general health conditions of the country through which the line travels particularly as regards malaria.
- (b) The medical staff that will be required in order to supervise the medical and preventive arrangements for the construction of the line.
- (c) To locate the places where hospital accommodation shall be provided.
- (d) As far as is practicable, to suggest to the railway company, where labour camps should be arranged and what localities to avoid.
- (e) To advise railway company as to the best sources of water supply for the labour forces.

(f) The Chief Engineer, Irrigation Department, in consultation with the railway engineers, will deal with the subject of the interference with natural drainage that might be caused by the railway embankments.

(g) The committee will also with the help of the Malaria Research officer study the subject of the influence of borrow pits on malaria of the district and will make such suggestions as circumstances demand.

(h) Some members of the committee, preferably the Malaria Research officer and the Sanitary Commissioner will periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that circumstances demand.

(i) To advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for the regular inspection and improvement of these.

(3) In case of any difficulty the Sanitary Commissioner of the Government of India may be called upon to meet the committee and to decide any point.

12 The main point of these suggestions is to obtain all possible assistance from local Governments in helping the railway construction engineers with the soundest advice on the health conditions they will have to meet during their construction operations. Thus the Sanitary Commissioner, Civil Surgeons of districts and Deputy Sanitary Commissioners, will all be more or less at the disposal of the railway department and to assist the medical staff appointed to look after the actual work. I foresee that in actual practice arrangements will be made very similar to those that obtained at the Lower Ganges Bridge. In this instance the Chief Medical Officer was made particularly a Civil Surgeon of a small area, neighbouring villages

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were put under his control; villages which were likely to act as disseminating centres for cholera and in which the labour resided were provided with a water-supply and were regularly visited by his sanitary staff; when the Medical Officer in charge was in difficulty on the subject of malaria a Deputy Sanitary Commissioner was lent in order to investigate any problem. In the event of any matter coming up from the local committee to which the Railway Board were not disposed to agree or which they considered to be unreasonable, they can always appeal to the Sanitary Commissioner with the Government of India, who will be prepared to investigate and advise. Railway Engineers may consider that the powers allotted to this committee are excessive and likely to interfere with the construction work; they must, however, be prepared for a certain amount of scientific control in matters appertaining to the health of districts. Judging by past results this has now become a necessity. Of course, the price of construction per mile may show some increase in the estimates, but the improved health of the staff will more than balance this, and we hope to do away entirely with the criticism which we are certainly open to at present, namely, that many square miles of territory are ruined from a health point of view owing to carelessness at the time of construction of railways. After all we are only asking for the application of the same principles that were necessary in the instance of the Panama Canal. In this rather extreme example the Panama Canal would never have been built at all had it not been for the thoroughly-organized service and preventive medicine. Visitors to the Canal Zone and critics of our administration in India frequently make the remark "why can't the Government of India do something of the same nature in this country?" The time has come when we must act more or less on the lines of the American Government when they undertook to construct the Panama Canal through a very unhealthy part of the country. I think that the above suggestions will meet the case of India, at any rate, to commence with. We shall get experience as time goes on and modifications and additions to the above suggestions will certainly be necessary, but I consider that the above are a very fair beginning and will result in much good to the community at large.

Order—No. 521 L., dated 21st April 1919.

The letter of the Government of India read above, is communicated to all district boards and municipal councils and the Corporation of Madras.

(True extract)

H. G. STOKES,
Acting Secretary to Government.

To Presidents of all District Boards.
,, Chairmen of all Municipal Councils.
,, all Collectors.
,, the President of the Corporation of Madras.
,, the Sanitary Commissioner.
,, the Sanitary Board.
,, the Public Works (Railways) Department.
,, the Public Works Department.
Editors' Table.

REVENUE.

No. L. 932—San. 4-19-23, dated 16th August 1921.

Rules relating to the Sanitary and Medical supervision of labour on the occasion of railway construction or other large public works.

The following rules are issued with a view to minimise the risks of the spread of communicable diseases as the result of, firstly, the uncontrolled congregation of labour on occasions when railway or other large construction works are undertaken, and secondly, the changes in the natural condition of the locality occasioned by the work, such as embankments, impediments to the natural drainage, borrow pits, etc. The aim is to secure a close co-ordination between the Sanitary Department and the authority responsible for the construction work, so as to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked. Equally, when the question is one of the prevention or the removal of impediments to natural drainage or of other conditions favourable to ill-health, the best results will be secured by consultation among the departmental officers and discussions of the various interests involved.

1. As soon as the construction of any portion of a railway line and the route to be followed have been decided upon, the Engineer-in-Chief for Railways will arrange to convene a meeting of the Committee, which is hereby constituted, consisting of:—

1. The Senior Surgeon.

2. The Sanitary Commissioner.

3. The Chief Engineer or the Engineer-in-Chief for Railways (as the case may be).

4. The Deputy Commissioner of the District through which the Railway passes, or in which the construction work is undertaken.

2. The Committee will meet, make a study of the routes along which the line is to be constructed and carefully investigate the following points:—

(a) the general health conditions of the country through which the line travels particularly as regards malaria;

(b) the medical and sanitary staff that will be required;

(c) the places where labour camps should be arranged and what localities to avoid;

(d) the sources of water-supply for the labour forces and

(e) the arrangements that should be made in the various places along with line to prevent interference with natural drainage that might be caused by the Railway embankments.

3. The Committee will also study the subject of the influence of borrow pits on malaria in the district and will make such suggestions as circumstances demand.

4. It is open to the Committee to advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for the regular inspection and improvement of these.

5. The District Sanitary Officer and the Sanitary Commissioner should periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that may be found necessary.

6. The Committee will record their opinion and report to the Engineer-in-Chief for Railways sending a copy of the report at the same time to the Chief Secretary to Government.

7. Among other things, the Committee should consider the possibility of water logging in the area due to the interruptions of the natural flow of water by embankments, canals, etc., and advise upon the best means of avoiding such possibility.

8. Procedure similar to that outlined in the preceding paragraphs should be adopted in case of large public works, other than railways, the officer responsible to convene the meeting and to obtain the advice of the Committee being, in this case, the Chief Engineer, Public Works Department.

9. As soon as construction of a large work is decided upon, a meeting of the Committee should be convened and proposal formulated. Work may be started pending Government Orders, but the arrangements from the very commencement of the work should be in accordance with the proposals.

10. In the case of large works controlled and managed by private agencies, the Sanitary Commissioner should, in consultation with the Senior Surgeon, take such steps as are necessary to ensure proper medical and sanitary arrangements during the aggregation of labour.

11. When there is reason to believe that the health of the people of a particular town or village is prejudicially affected by the existence of borrow pits or by serious obstruction to the natural drainage of the area, the Sanitary Commissioner may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise for filling up the borrow pits or draining the excavations. When a scheme is proposed in this direction likely to impose expenditure on the Railway, the requisition to the Railway authorities to carry out the drainage or reclamation should be made by the local authority with the previous sanction of Government.

12. In cases where a large labour force is stationed permanently or for a long time at any place in connection with large industries, it shall be the duty of the Sanitary Commissioner, to make inspections from time to time and bring to the notice of Government deficiencies, if any, in the Sanitary arrangements made and in the conditions under which labour is housed and controlled.

By Order,

B. RAMASWAMIYA,

Secretary to Government,
Revenue Department.

No. 4.

FROM

THE HON'BLE MR. H. SHARP, C.S.I., C.I.E.,
Offg. Secretary to the Government of India,

TO

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
LOCAL AND MUNICIPAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF BOMBAY,
GENERAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF BENGAL,
MUNICIPAL (SANITATION) DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF THE
UNITED PROVINCES,
SANITATION DEPARTMENT.

THE FINANCIAL SECRETARY TO THE GOVERNMENT OF THE
PUNJAB.

THE SECRETARY TO THE GOVERNMENT OF BURMA,
GENERAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF
BIHAR AND ORISSA,
MUNICIPAL (SANITATION) DEPARTMENT

THE SECOND SECRETARY TO THE CHIEF COMMISSIONER OF THE
CENTRAL PROVINCES.

THE SECOND SECRETARY TO THE CHIEF COMMISSIONER OF
ASSAM.

THE HON'BLE THE CHIEF COMMISSIONER AND
AGENT TO THE GOVERNOR-GENERAL IN THE
NORTH-WEST FRONTIER PROVINCE.

THE CHIEF COMMISSIONER, COORG.

THE CHIEF COMMISSIONER, DELHI.

Dated Delhi, the 7th January 1919.

Department of Education.
Sanitary.

SIR,

I am directed to address you on the subject of the influence of railway construction on public health, especially the questions involved in large aggregations of labour, the effect of borrow pits and the interference of embankments with the natural drainage of the country. These subjects have been engaging the attention of the Government of India for some time. Copies of a note by Lieutenant-Colonel Clemesha, the Sanitary Commissioner with the Government of India, dated 27th September 1916, and of a circular of the Railway Board, no. 430-W.-16, dated the 5th December 1916, are enclosed for information.

2. The Sanitary Commissioner lays special emphasis on the necessity of the control of congregated labour on railway construction and other large public works

and in his opinion outbreaks of malaria and the general unhealthiness of large tracts of country are directly due to the deficient sanitary arrangements made during the aggregation of labour and the unsatisfactory conditions under which labour is housed, and controlled. He suggests that greater co-ordination in respect of sanitary arrangements is necessary between the Sanitary Department and those responsible for the construction of railway and other works. To secure this object he has, in paragraph 11 of his note, outlined the constitution and functions of a committee. His suggestion for the appointment of a committee when railway and other large public works are taken in hand has the approval of the Government of India. The constitution of the committee has been criticised by several Railway Administrations as being too elaborate. This, however, is a matter of detail, and the Government of India would leave to the local Governments, when they receive intimation that railway operations or other large public works are imminent, to settle in each case in consultation with the authorities concerned the constitution and the functions of the committee. The Railway Administrations have also accepted the proposals put forward by the Sanitary Commissioner that adequate arrangements for medical supervision of labour and for ensuring proper sanitary conditions should be made during construction; and the Government of India trust that similar steps will be taken in the case of public works under the control of the Public Works and other Departments of Government. It would, no doubt, be desirable to formulate proposals and to obtain the necessary sanction before the work began. In the case of large works, controlled and managed by private agencies, steps should be taken to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked.

3. It will be observed that the Sanitary Commissioner is of opinion that the results of borrow pits and the blocking of drainage on the health of local inhabitants have been exaggerated. He thinks, however, that in some areas borrow pits are undoubtedly the cause of a good deal of malaria and that in certain cases railway lines have caused serious obstruction to drainage; and he considers that in the neighbourhood of towns and railway stations borrow pits are objectionable. The Railway Administrations have generally agreed that borrow pits should not be dug within the boundaries of considerable towns and railway stations and that, when practicable, railway excavations should be made so as to drain off promptly and not result in stagnation near inhabited areas. The Railway Administrations have also accepted the suggestion made in the circular letter of the Railway Board that railways and local bodies should share the cost of filling up existing borrow pits and of draining all excavations in equal proportions, though reservations have been made by certain railways that they should not be required to carry out drainage or reclamation when for sufficient reasons this is not practicable.

4. The municipalities cannot legally be called upon to bear half or any portion of the cost of filling up or draining the existing borrow pits and excavations dug by railways and the provisions of the Railway Act do not deprive municipalities of their statutory powers to require railways to fill up or drain excavations prejudicial to health. It is also desirable that when a scheme is proposed in this direction the Sanitary Commissioner of the Province should be consulted as to its necessity in order that no unnecessary expenditure may be incurred. I am to point out that expenditure on any scheme for drainage and reclamation incurred by the railway would be useless if the municipality proceeded against the railway alone without taking similar action with regard to other places injurious to health and that, as pointed out by the Sanitary Commissioner, the filling up of borrow pits would not in all cases assist in the prevention of malaria. The Government of India trust to the local bodies to exercise their legal powers in such a way as not to call upon the railways to incur expenditure which would not serve a useful purpose.

5. It has been suggested that in some provinces railway companies should be encouraged to dig deep tanks instead of borrow pits in inhabited areas. In this connection attention is invited to the remarks made in page 11 of Major Fry's first report on Malaria in Bengal to the effect that in certain areas deep tanks and borrow pits which contained sufficient water all the year round to enable the fish population to survive and which were free from weeds were rarely important as breeding places for mosquitos. This statement is of course not applicable to all parts of India. But when it is applicable and where such deep tanks and borrow pits

supply a local need, it is believed that the local bodies will be willing to contribute a fair share of the extra cost involved. I am to commend the possibilities of this suggestion to the notice of the local Governments.

6. I am further to observe that it is generally agreed that the water-logging in certain areas is due to the interruptions of the natural flow of water by embankments, canals, &c., which are insufficiently provided with waterways and that by such water-logging both the health of the people and, in certain large tracts of country, the productivity of the soil are prejudicially affected. Every endeavour should be made to see that natural drainage is not impeded and that, where it is already impeded, such impediments should be removed. This is one of the points which the Sanitary Commissioner in paragraph 11 (f) of his note has indicated as requiring attention when a new line is under consideration, but equally when the question is one of the removal of existing impediments to drainage the best results will be secured by consultation and discussion between the various interests concerned.

I have the honour to be,

SIR,

Your most obedient servant,

H. SHARP,

Offg. Secretary to the Government of India.

No. 5.

() To Railway
Department.

Copy forwarded to the Railway Department
Foreign and Political Department
Public Works Department (with reference to the endorsement from that Department no. 430-W.-16, dated the 24th January, 1917, for information and such further action as may be deemed necessary).

By order,

J. M. MITRA,

Deputy Secretary to the Government of India.

No. 430-W.-16, dated the 5th December 1916.

From—The Secretary, RAILWAY BOARD,

To—The Agents, Assam-Bengal, Barsi Light, Bengal and North-Western, Bengal-Nagpur, Great Indian Peninsula, Guzerat, Madras and Southern Mahratta, North Western, Oudh and Rohilkhand, Rohilkhund and Kumaon and South Indian Railways, Agent and Chief Engineer, His Highness the Nizam's Guaranteed State Railway (through the Hon'ble the Resident at Hyderabad), Manager, Jodhpur-Bikaner Railways.

I am directed to inform you that the question of the influence of railway construction on malaria and the measures to be adopted for the prevention of the spread of the disease have been under the consideration of the Government of India.

2. The Sanitary Commissioner with the Government of India, who was consulted in the matter, has recorded his views in a note on the subject, and I am to enclose a copy of his note for your consideration. It will be seen from this note that the Sanitary Commissioner holds :—

- (a) that in some, but not in all, areas borrow-pits cause malaria ;
- (b) that blocking of drains as a cause of malaria has been exaggerated ; and
- (c) that malaria is due mainly to the congregation of labour employed on railway construction or other large works.

3. To meet the danger referred to in (c) above, the Sanitary Commissioner considers that greater co-ordination is necessary between the Sanitary Department and those responsible for the construction of railways or other works, and he outlines in paragraph 11 of his note the best method by which co-operation between these authorities could be secured with respect to sanitary arrangements on such large works.

4. As regards (a) and (b) in paragraph 2, it has been suggested that, within the municipal boundaries of any town of over ten thousand inhabitants, no new borrow-pits should be dug by railways, and that the existing borrow-pits, if any, should be drained or reclaimed as occasion offers in consultation with the municipal authorities ; half the cost of any scheme of drainage or reclamation that might be agreed upon being borne by the railway and the balance by the local body concerned.

5. I am now to ask that the Railway Board may be favoured, as soon as possible, with your views on the following points :—

- (1) whether railways are prepared to accept some general principle of the kind put forward in paragraph 4 ;
- (2) whether you agree that railway excavations should, where possible, be made in such a way as to drain promptly and completely into the nearest watercourse, and not result in stagnation of water in the neighbourhood of inhabited areas ;
- (3) whether the Sanitary Commissioner's proposals on the subject of medical supervision of labour employed on construction as to the sanitary arrangements of works are such that they can be accepted.

6. The whole matter is clearly one of great importance and the Railway Board will be glad to have your views on it.

The subject of the influence of railway construction on the health of a district is a very large and extremely important one, and it will be necessary to make a few preliminary remarks of a general nature.

2. The issues that arise from the question of borrow-pits and obstruction to drainage are but portions of a very much larger problem with which we are faced, and I am strongly of opinion that the best course will be to deal now with the whole subject rather than taking it up piecemeal. How large and important the influence of railway construction on the health of a country may be, is extremely well set forth in an important article* by Bentley and Christophers. This

*Transactions of the Bombay Medical Congress, 1909.

article is of such importance that, in my opinion, copies of it should have been put into the hands of all large employers of labour at the time of its publication. I recommend it to the most earnest attention of the Members of the Railway Board.

3. It is unnecessary for me to repeat the general lines of argument of the paper, but it will be observed that, in several places, reference is made to the deficient arrangements for prevention of disease made by railway and other employers of labour resulting in ill-health to large tracts of country. I do not think that it can be denied:—

- (1) That owing to deficient sanitary arrangements, or other causes, during the aggregation of labour for construction work, epidemics of malaria and other diseases have occurred, and very large tracts of country have been rendered extremely unhealthy.
- (2) That railway and other authorities, not infrequently, incur unnecessary expenditure by not taking expert advice and making adequate sanitary arrangements for the protection of their working staff in unhealthy districts. An unnecessarily large amount of sickness and death amongst their employes thereby results and wholesale desertion of the labour force may occur.
- (3) That alterations in the natural condition of a locality occasioned by the construction of borrow-pits and the blocking of drainage with embankments sometimes occasions the ill-health of the rural population.

These may appear, at first sight, to be very dogmatic assertions, but a careful survey of the facts of the case will carry conviction as to their general accuracy. There can be no doubt whatever that, in certain cases, the advent of a railway has resulted in a marked deterioration in the health of the community which it serves, and it is only by careful research and application of modern methods of sanitation that such untoward happenings can be avoided in the future. Probably the most important factor in such cases is the one mentioned in Bentley and Christophers' paper, namely, that railway officers, up to the present, have not recognised the danger incidental to any aggregation of labour in tropical countries.

4. Before discussing this matter further, it will be well to give certain concrete examples illustrative of my main contentions.

(1) As pointed out by Christophers and Bentley, it is now fairly certain that the extraordinary epidemic of malaria which occurred in Lower Bengal which was known as the Burdwan fever epidemic was due to the construction and opening of the railway between Calcutta and Burdwan. There probably were other factors concerned, such as the river bunds along the banks of the Damodar, but in the light of the most modern research on malaria probably the deciding factor in the case was the aggregation of labour and the expansion of trade caused by the opening of the line. The results of this epidemic are still with us. In parts of Murshidabad, Nadia, Jessore, and Burdwan malaria is still hyper-endemic, and it seems almost impossible to break the vicious circle when one recognises that the natural conditions are all favourable to malaria.

(2) The case of Ennur is another example of the result of the deterioration of health of a settlement on account of railway enterprise. Not very long ago, before the railway was constructed, Ennur was one of the health-resorts of Madras. Since the construction of the railway bridge over the backwater the place has been practically uninhabitable on account of the prevalence of malaria. All the bungalows are now unoccupied. The railway staff at Ennur was allowed to live some miles further up the line on account of the great prevalence of the disease. Prior to the starting of the railway construction works there were a few healthy fishermen in the neighbourhood and a large salt factory. Anopheles of a deadly character must have even then been present but there was no "reservoir of parasites." The advent of coolie labour for the construction of the bridge supplied this deficiency in the malaria cycle, and the anopheles did the rest. The place is still very malarious, in spite of endeavours on the part of the Government of Madras to lessen the number of parasite-bearers by wholesale treatment with quinine.

It may be objected that the above two instances are very ancient and occurred prior to the proper understanding of the malaria problem, and that the explanation given is open to certain criticisms. It is desirable therefore to give some more modern instances.

(3) Amongst these is the epidemic of malaria in the Rajshahi division which occurred between the years of 1905 and 1909 at the time of the construction of the railway line between Godagari-ghat and Katihar. This epidemic was carefully investigated by a Sanitary Officer, namely, Major McCombie Young, who demonstrated that there was a distinct correlation between construction of the railway and the amount of malaria in the districts concerned. The report is available for anyone who wishes to see it. Major Young also pointed out that the mortality amongst the coolies engaged on the work was very high.

(4) An instance of the serious results of lack of knowledge of the guiding principles of malaria came to my notice in 1914 in the arrangements for the construction of the line from Kishanganj to Siliguri. The bungalows for the Chief Construction Engineer, the Assistant Engineer, and the workshop were situated on what appeared to be a very suitable site on the banks of a small river. As a result of this, during the following malaria season the Chief Engineer and his wife, the Assistant Engineer and his wife, and every member of the workshop staff were down with malaria. The provincial preventive staff consisted of myself and two expert malaria officers, who were never consulted in the selection of this site; any of us would have been able to warn the officer responsible for the work that in the Terai the banks of streams were absolutely deadly at certain times of the year. At this date also the only medical staff that was considered necessary for a line some 70 miles in length through probably the most malarious country in the whole of India was one hospital assistant. The amount of sickness and desertion on the part of coolie labour was very high indeed and the Railway Board are probably better acquainted than I am with the large cost of the work due to delays and enhanced rates to contractors caused by lack of proper medical arrangements.

(5) The final example of defective sanitary arrangements in connection with construction work to which I desire to draw attention is that of the Kidderpur Bracebridge Hall dock extension. I do not know whether this combined railway and dock extension scheme comes directly under the cognisance of the Railway Board or not, but the necessity for proper organisation of labour forces is extremely well exemplified in this particular case.

At present a comparatively small labour force is employed because the work is largely confined to the construction of dock gates and river frontage works, for which highly paid and skilled labour is necessary. When the ordinary excavation work of the main dock is commenced, a large force of coolies will be required. I have made a careful survey of the whole locality and of the conditions of housing the small labour force which is at present employed, and I may say that the conditions under which these coolies live are extremely bad and require to be changed. The malaria survey of the district shows that there are mosquito breeding places in any number. Anopheline mosquitos also abound. The existing labour force is small, is very well paid, has been located on these sites for a considerable period, and does not contain a large percentage of parasite-carriers. That is the reason why malaria is not at present rife in the neighbourhood, but the advent of 8 to 10 thousand coolies from other parts of India, bringing with them a fair percentage of malaria parasite-bearers, is just the one factor necessary to start a violent epidemic as it did in Bombay in 1908. It is unnecessary for me to go here into details as to what should be done to prevent this evil. The point is that close co-ordination between the Engineering authorities undertaking the work and the Sanitary Department is necessary, if disaster is to be avoided.

5. I think the above instances will be taken as sufficient to prove my point. They could be multiplied almost indefinitely by hunting up the records of Civil Surgeons and Sanitary Officers' reports. Allusion has been made to the epidemic of malaria in Bombay city in 1908. The Railway Board may not be in any way responsible for this, but it is an example of the careless aggregation of labour which brought in its train very dire results. Finally the old idea that cutting the earth and turning up the soil was the cause of malaria is now adequately explained by modern workers as due entirely to the unsatisfactory conditions under which the coolies were housed and looked after. It may be objected that quite a large proportion of the instances given above occurred in Bengal, which is notoriously a malarious country and, therefore, more liable to serious accidents of this nature. I am prepared to admit the force of this contention, but the main reason why Bengal instances are largely chosen is that they are best known to me. I have no doubt in my own mind that conditions are more favourable for serious and widespread epidemics in that Province and in Assam than in most parts of India, but at the same time similar smaller and less important accidents are not unusual throughout the whole of India, and in touring about one frequently hears of them.

6. I do not propose to deal at length with the subject of cholera on railway construction works because malarial epidemics undoubtedly present the greater difficulties and any organisation which is prepared to cope with these will certainly be competent to remove most, if not all, of the dangers of spreading cholera. That cholera is a frequent visitant on railway

construction must be admitted: one has only to meet construction engineers from any parts of India to hear stories of epidemics amongst railway coolies which never find their way into any Government report or against which preventive measures are never undertaken until they have occurred. Very likely there has been an improvement in this direction in recent years, but more is necessary.

7. After so much adverse criticisms of defective methods, it is pleasant to be able to speak most highly of the excellent sanitary arrangements that were made for the construction of the Lower Ganges Bridge. There a skilled and energetic medical officer was appointed, he was given a large preventive staff; he was made a sort of Civil Surgeon of the districts adjoining his work and every possible care was taken of everybody on the work. The Medical Officer in charge worked in co-operation with the Sanitary Commissioner of the Province and received additional help from him in the matter of a Deputy Sanitary Commissioner to advise him on anti-malarial work, and financial assistance was also forthcoming from the local Government. The results of these sound arrangements are better known to the Railway Board than they are to me. The work of construction was completed well in advance of the promised time and, I believe I am correct in saying, with a considerable saving on the budget estimate. But these excellent arrangements should be the rule and not the exception.

8. Before closing I wish to say a few words on the relative importance of each of these three main criticisms given in the early part of this note. A careful perusal of Christophers and Bentley's paper will show the stress they lay on the importance of the aggregation of labour. In all probability this is by far the most important factor in the spread of disease; a great deal of the agitation in the lay press against blocking of drainage and manufacturing of borrow pits is wrong in point of fact, the results they complain about should in reality be brought under this first head. Of course the dangers resulting from the careless aggregation of labour vary enormously in different parts of this country, but practically in no part of the country can the present unsatisfactory arrangements of collecting thousands of coolies together without adequate sanitary precautions or skilled advice be allowed to continue. The results of carelessness under this head are so far-reaching that no amount of trouble and expense must be spared in order to prevent accidents. It is impossible to estimate either the financial loss or the amount of suffering to a large number of innocent individuals that results from a widespread epidemic of malaria. As already pointed out, we are probably still suffering in Bengal from the direct results of an epidemic which was primarily started by the construction of the line between Calcutta and Burdwan in the fifties.

9. As regards the second allegation, it will probably be admitted by all in a position to judge that there is nothing so expensive as ill-health among the labour forces on the construction of a line; it is impossible to estimate the financial loss to Government of say two or three good construction engineers being invalidated home on account of a preventable disease. In how many instances are estimates exceeded and difficulties multiplied tenfold due to sickness amongst the labour? Therefore, from a business point of view, everything should be done to maintain the whole of the employes, from the Chief Engineer down to the lowest paid coolie on the line in a good and efficient state of health.

10. With regard to the results caused by borrow pits and blocking of drainage, I consider that it is impossible to make any general statement; what is true in one place is hopelessly incorrect for another. The blockage of drainage is, in many parts of the country, a very serious affair, but I am inclined to believe that the amount of obstruction that is caused by railway lines that have been constructed, say three years previously, is greatly exaggerated. Of course, it is a sort of parrot cry that the advent of railways always obstructs local drainage. As a matter of fact investigation of many of the lines shows that this is not the case, and the damage to health which is connected with the railways is probably, as already pointed out, due to the first cause and not to the obstruction of the drainage itself. Instances have, however, been brought to my notice where serious obstruction has occurred, and, I regret to say, where it has taken years to get the matter remedied. Very much the same remarks apply to borrow pits. In some parts of the country, borrow pits are most objectionable and are undoubtedly the cause of a good deal of malaria, particularly in such places as round the city of Delhi and Amritsar, in the Doab in the United Provinces, and in other places where flooding and stagnation of water appear to be powerful factors. They are, I consider, a powerful factor in the spread of the disease along the line from Chittagong to Chandpur. On the other hand, there can be little doubt that in many places the borrow pits can have little influence on the health of the local inhabitants. I am inclined to think that, in a marshy country like Bengal, their influence on the general health is greatly exaggerated, and that careful investigation would prove this. As in all malaria problems, it is impossible to lay down hard and fast rules, and the only way of solving the problem is to have a careful inquiry made by a skilled officer in places where there may be any reasonable doubt. In the neighbourhood of towns, and close vicinity of railway stations, it is safe to say that borrow pits are objectionable and undesirable. More than this I do not want to say at present.

11. Within the last decade, the science of epidemiology and preventive medicine have made enormous strides. Much of the work that has been done is naturally not known to Railway and Irrigation authorities and other large employers of labour, but the time has now come when co-ordination between these and the Sanitary Department is pre-eminently desirable. I consider that the best way of attaining this object will be as follows :—

(1) As soon as the Railway Board have decided to construct any portion of a line and have decided on the route to be followed, information shall be given by the Railway Administration to the local Government concerned who will arrange to convene a committee consisting of :—

- (i) Sanitary Commissioner of the Province,
- (ii) Chief Medical Officer of the Railway company.
- (iii) Chief Engineer of the Railway, who is to carry out the construction work,
- (iv) Chief Engineer, Irrigation Department, of the Province,
- (v) Commissioner of the division through which the railway travels or Collector of the district and the Civil Surgeon as may be thought desirable,
- (vi) The Malaria Research Officer of the Province.

(2) This committee will meet, make study of the routes along which the line is to be constructed and will carefully investigate the following points : (they will record their opinion and will report to the Railway Board, and, if necessary, to the local Government).

- (a) The general health conditions of the country through which the line travels particularly as regards malaria.
- (b) The medical staff that will be required in order to supervise the medical and preventive arrangements for the construction of the line.
- (c) To locate the places where hospital accommodation shall be provided.
- (d) As far as is practicable to suggest to the railway company where labour camps should be arranged and what localities to avoid.
- (e) To advise railway company as to the best sources of water supply for the labour forces.
- (f) The Chief Engineer, Irrigation Department, in consultation with the railway engineers will deal with the subject of the interference with natural drainage that might be caused by the railway embankments.
- (g) The committee will also with the help of the Malaria Research Officer study the subject of the influence of borrow-pits on Malaria of the district and will make such suggestions as circumstances demand.
- (h) Some members of the committee preferably the Malarial Research officer and the Sanitary Commissioner will periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that circumstances demand.
- (i) To advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for the regular inspection and improvement of these.

(3) In case of any difficulty the Sanitary Commissioner of the Government of India may be called upon to meet the committee and to decide any point.

12. The main point of these suggestions is to obtain all possible assistance from local Governments in helping the railway construction engineers with the soundest advice on the health conditions they will have to meet during their construction operations. Thus the Sanitary Commissioner, Civil Surgeons of districts and Deputy Sanitary Commissioners, will all be more or less at the disposal of the Railway Department and to assist the medical staff appointed to look after the actual work. I foresee that in actual practice arrangements will be made very similar to those that obtained at the Lower Ganges Bridge. In this instance the Chief Medical Officer was made particularly a Civil Surgeon of a small area; neighbouring villages were put under his control; villages which were likely to act as disseminating centres for cholera and in which the labour resided were provided with a water supply and were regularly visited by his sanitary staff; when the Medical Officer in charge was in difficulty on the subject of malaria a Deputy Sanitary Commissioner was lent in order to investigate any problem. In the event of any matter coming up from the local committee to which the Railway Board were not disposed to agree or which they considered to be unreasonable, they can always appeal to the Sanitary Commissioner with the Government of India, who will be prepared to investigate and

advise. Railway Engineers may consider that the powers allotted to this committee are excessive and likely to interfere with the construction work; they must, however, be prepared for a certain amount of scientific control in matters appertaining to the health of districts. Judging by past results this has now become a necessity. Of course, the price of construction per mile may show some increase in the estimates, but the improved health of the staff will more than balance this, and we hope to do away entirely with the criticism which we are certainly open to at present, namely, that many square miles of territory are ruined from a health point of view owing to carelessness at the time of construction of railways. After all we are only asking for the application of the same principles that were necessary in the instance of the Panama Canal. In this rather extreme example the Panama Canal would never have been built at all had it not been for the thoroughly organised service and preventive medicine. Visitors to the Canal Zone and critics of our administration in India frequently make the remark "why can't the Government of India do something of the same nature in this country." The time has come when we must act more or less on the lines of the American Government when they undertook to construct the Panama Canal through a very unhealthy part of the country. I think that the above suggestions will meet the case of India, at any rate, to commence with. We shall get experience as time goes on and modifications and additions to the above suggestions will certainly be necessary, but, I consider, that the above are a very fair beginning and will result in much good to the community at large.

W. W. CLEMESHA,—27-9-16.

No. 4.

FROM

THE HON'BLE MR. H. SHARP, C.S.I., C.I.E.,

Offg. Secretary to the Government of India,

TO

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
LOCAL AND MUNICIPAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF BOMBAY,
GENERAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF BENGAL,
MUNICIPAL (SANITATION) DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF THE
UNITED PROVINCES,
SANITATION DEPARTMENT.

THE FINANCIAL SECRETARY TO THE GOVERNMENT OF THE
PUNJAB.

THE SECRETARY TO THE GOVERNMENT OF BURMA,
GENERAL DEPARTMENT.

THE SECRETARY TO THE GOVERNMENT OF
BIHAR AND ORISSA,
MUNICIPAL (SANITATION) DEPARTMENT.

THE SECOND SECRETARY TO THE CHIEF COMMISSIONER OF THE
CENTRAL PROVINCES.

THE SECOND SECRETARY TO THE CHIEF COMMISSIONER OF
ASSAM.

THE HON'BLE THE CHIEF COMMISSIONER AND
AGENT TO THE GOVERNOR-GENERAL IN THE
NORTH-WEST FRONTIER PROVINCE.

THE CHIEF COMMISSIONER, COORG.

THE CHIEF COMMISSIONER, DELHI.

Dated Delhi, the 7th January 1919.

Department of Education.
Sanitary.

SIR,

I am directed to address you on the subject of the influence of railway construction on public health, especially the questions involved in large aggregations of labour, the effect of borrow pits and the interference of embankments with the natural drainage of the country. These subjects have been engaging the attention of the Government of India for some time. Copies of a note by Lieutenant-Colonel Clemesha, the Sanitary Commissioner with the Government of India, dated 27th September 1916, and of a circular of the Railway Board, no. 430-W.-16, dated the 5th December 1916, are enclosed for information.

2. The Sanitary Commissioner lays special emphasis on the necessity of the control of congregated labour on railway construction and other large public works

and in his opinion outbreaks of malaria and the general unhealthiness of large tracts of country are directly due to the deficient sanitary arrangements made during the aggregation of labour and the unsatisfactory conditions under which labour is housed and controlled. He suggests that greater co-ordination in respect of sanitary arrangements is necessary between the Sanitary Department and those responsible for the construction of railway and other works. To secure this object he has, in paragraph 11 of his note, outlined the constitution and functions of a committee. His suggestion for the appointment of a committee when railway and other large public works are taken in hand has the approval of the Government of India. The constitution of the committee has been criticised by several Railway Administrations as being too elaborate. This, however, is a matter of detail, and the Government of India would leave to the local Governments, when they receive intimation that railway operations or other large public works are imminent, to settle in each case in consultation with the authorities concerned the constitution and the functions of the committee. The Railway Administrations have also accepted the proposals put forward by the Sanitary Commissioner that adequate arrangements for medical supervision of labour and for ensuring proper sanitary conditions should be made during construction; and the Government of India trust that similar steps will be taken in the case of public works under the control of the Public Works and other Departments of Government. It would, no doubt, be desirable to formulate proposals and to obtain the necessary sanction before the work began. In the case of large works, controlled and managed by private agencies, steps should be taken to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked.

3. It will be observed that the Sanitary Commissioner is of opinion that the results of borrow pits and the blocking of drainage on the health of local inhabitants have been exaggerated. He thinks, however, that in some areas borrow pits are undoubtedly the cause of a good deal of malaria and that in certain cases railway lines have caused serious obstruction to drainage; and he considers that in the neighbourhood of towns and railway stations borrow pits are objectionable. The Railway Administrations have generally agreed that borrow pits should not be dug within the boundaries of considerable towns and railway stations and that, when practicable, railway excavations should be made so as to drain off promptly and not result in stagnation near inhabited areas. The Railway Administrations have also accepted the suggestion made in the circular letter of the Railway Board that railways and local bodies should share the cost of filling up existing borrow pits and of draining all excavations in equal proportions, though reservations have been made by certain railways that they should not be required to carry out drainage or reclamation when for sufficient reasons this is not practicable.

4. The municipalities cannot legally be called upon to bear half or any portion of the cost of filling up or draining the existing borrow pits and excavations dug by railways and the provisions of the Railway Act do not deprive municipalities of their statutory powers to require railways to fill up or drain excavations prejudicial to health. It is also desirable that when a scheme is proposed in this direction the Sanitary Commissioner of the Province should be consulted as to its necessity in order that no unnecessary expenditure may be incurred. I am to point out that expenditure on any scheme for drainage and reclamation incurred by the railway would be useless if the municipality proceeded against the railway alone without taking similar action with regard to other places injurious to health and that, as pointed out by the Sanitary Commissioner, the filling up of borrow pits would not in all cases assist in the prevention of malaria. The Government of India trust to the local bodies to exercise their legal powers in such a way as not to call upon the railways to incur expenditure which would not serve a useful purpose.

5. It has been suggested that in some provinces railway companies should be encouraged to dig deep tanks instead of borrow pits in inhabited areas. In this connection attention is invited to the remarks made in page 11 of Major Fry's first report on Malaria in Bengal to the effect that in certain areas deep tanks and borrow pits which contained sufficient water all the year round to enable the fish population to survive and which were free from weeds were rarely important as breeding places for mosquitos. This statement is of course not applicable to all parts of India. But when it is applicable and where such deep tanks and borrow pits

supply a local need, it is believed that the local bodies will be willing to contribute a fair share of the extra cost involved. I am to commend the possibilities of this suggestion to the notice of the local Governments.

6. I am further to observe that it is generally agreed that the water-logging in certain areas is due to the interruptions of the natural flow of water by embankments, canals, &c., which are insufficiently provided with waterways and that by such water-logging both the health of the people and, in certain large tracts of country, the productivity of the soil are prejudicially affected. Every endeavour should be made to see that natural drainage is not impeded and that, where it is already impeded, such impediments should be removed. This is one of the points which the Sanitary Commissioner in paragraph 11 (f) of his note has indicated as requiring attention when a new line is under consideration, but equally when the question is one of the removal of existing impediments to drainage the best results will be secured by consultation and discussion between the various interests concerned.

I have the honour to be,

SIR,

Your most obedient servant,

H. SHARP,

Offg. Secretary to the Government of India.

No. 5.

() To Railway
Department.

Copy forwarded to the Railway Department
Foreign and Political Department
Public Works Department (with reference to the endorsement from that Department no. 430-W.-16, dated the 24th January, 1917, for information and such further action as may be deemed necessary).

By order,

J. M. MITRA,

Deputy Secretary to the Government of India.

No. 430-W.-16, dated the 5th December 1916.

From—The Secretary, RAILWAY BOARD,

To—The Agents, Assam-Bengal, Barsi Light, Bengal and North-Western, Bengal-Nagpur, Great Indian Peninsula, Guzerat, Madras and Southern Mahratta, North Western, Oudh and Rohilkhand, Rohilkhund and Kumaon and South Indian Railways, Agent and Chief Engineer, His Highness the Nizam's Guaranteed State Railway (through the Hon'ble the Resident at Hyderabad), Manager, Jodhpur-Bikaner Railways.

I am directed to inform you that the question of the influence of railway construction on malaria and the measures to be adopted for the prevention of the spread of the disease have been under the consideration of the Government of India.

2. The Sanitary Commissioner with the Government of India, who was consulted in the matter, has recorded his views in a note on the subject, and I am to enclose a copy of his note for your consideration. It will be seen from this note that the Sanitary Commissioner holds :—

- (a) that in some, but not in all, areas borrow-pits cause malaria ;
- (b) that blocking of drains as a cause of malaria has been exaggerated : and
- (c) that malaria is due mainly to the congregation of labour employed on railway construction or other large works.

3. To meet the danger referred to in (c) above, the Sanitary Commissioner considers that greater co-ordination is necessary between the Sanitary Department and those responsible for the construction of railways or other works, and he outlines in paragraph 11 of his note the best method by which co-operation between these authorities could be secured with respect to sanitary arrangements on such large works.

4. As regards (a) and (b) in paragraph 2, it has been suggested that, within the municipal boundaries of any town of over ten thousand inhabitants, no new borrow-pits should be dug by railways, and that the existing borrow-pits, if any, should be drained or reclaimed as occasion offers in consultation with the municipal authorities ; half the cost of any scheme of drainage or reclamation that might be agreed upon being borne by the railway and the balance by the local body concerned.

5. I am now to ask that the Railway Board may be favoured, as soon as possible, with your views on the following points :—

- (1) whether railways are prepared to accept some general principle of the kind put forward in paragraph 4 ;
- (2) whether you agree that railway excavations should, where possible, be made in such a way as to drain promptly and completely into the nearest watercourse, and not result in stagnation of water in the neighbourhood of inhabited areas ;
- (3) whether the Sanitary Commissioner's proposals on the subject of medical supervision of labour employed on construction as to the sanitary arrangements of works are such that they can be accepted.

6. The whole matter is clearly one of great importance and the Railway Board will be glad to have your views on it.

The subject of the influence of railway construction on the health of a district is a very large and extremely important one, and it will be necessary to make a few preliminary remarks of a general nature.

2. The issues that arise from the question of borrow-pits and obstruction to drainage are but portions of a very much larger problem with which we are faced, and I am strongly of opinion that the best course will be to deal now with the whole subject rather than taking it up piecemeal. How large and important the influence of railway construction on the health of a country may be, is extremely well set forth in an important article* by Bentley and Christophers. This article is of such importance that, in my opinion, copies of it should have been put into the hands of all large employers of labour at the time of its publication. I recommend it to the most earnest attention of the Members of the Railway Board.

Transactions of the Bombay Medical Congress, 1909.

3. It is unnecessary for me to repeat the general lines of argument of the paper, but it will be observed that, in several places, reference is made to the deficient arrangements for prevention of disease made by railway and other employers of labour resulting in ill-health to large tracts of country. I do not think that it can be denied :—

- (1) That owing to deficient sanitary arrangements, or other causes, during the aggregation of labour for construction work, epidemics of malaria and other diseases have occurred, and very large tracts of country have been rendered extremely unhealthy.
- (2) That railway and other authorities, not infrequently, incur unnecessary expenditure by not taking expert advice and making adequate sanitary arrangements for the protection of their working staff in unhealthy districts. An unnecessarily large amount of sickness and death amongst their employés thereby results and wholesale desertion of the labour force may occur.
- (3) That alterations in the natural condition of a locality occasioned by the construction of borrow-pits and the blocking of drainage with embankments sometimes occasions the ill-health of the rural population.

These may appear, at first sight, to be very dogmatic assertions, but a careful survey of the facts of the case will carry conviction as to their general accuracy. There can be no doubt whatever that, in certain cases, the advent of a railway has resulted in a marked deterioration in the health of the community which it serves, and it is only by careful research and application of modern methods of sanitation that such untoward happenings can be avoided in the future. Probably the most important factor in such cases is the one mentioned in Bentley and Christophers' paper, namely, that railway officers, up to the present, have not recognised the danger incidental to any aggregation of labour in tropical countries.

4. Before discussing this matter further, it will be well to give certain concrete examples illustrative of my main contentions.

(1) As pointed out by Christophers and Bentley, it is now fairly certain that the extraordinary epidemic of malaria which occurred in Lower Bengal which was known as the Burdwan fever epidemic was due to the construction and opening of the railway between Calcutta and Burdwan. There probably were other factors concerned, such as the river bunds along the banks of the Damodar, but in the light of the most modern research on malaria probably the deciding factor in the case was the aggregation of labour and the expansion of trade caused by the opening of the line. The results of this epidemic are still with us. In parts of Murshidabad, Nadia, Jessore, and Burdwan malaria is still hyper-endemic, and it seems almost impossible to break the vicious circle when one recognises that the natural conditions are all favourable to malaria.

(2) The case of Ennur is another example of the result of the deterioration of health of a settlement on account of railway enterprise. Not very long ago, before the railway was constructed, Ennur was one of the health-resorts of Madras. Since the construction of the railway bridge over the backwater the place has been practically uninhabitable on account of the prevalence of malaria. All the bungalows are now unoccupied. The railway staff at Ennur was allowed to live some miles further up the line on account of the great prevalence of the disease. Prior to the starting of the railway construction works there were a few healthy fishermen in the neighbourhood and a large salt factory. Anopheles of a deadly character must have even then been present but there was no "reservoir of parasites." The advent of coolie labour for the construction of the bridge supplied this deficiency in the malaria cycle, and the anopheles did the rest. The place is still very malarious in spite of endeavours on the part of the Government of Madras to lessen the number of parasite-bearers by wholesale treatment with quinine.

It may be objected that the above two instances are very ancient and occurred prior to the proper understanding of the malaria problem, and that the explanation given is open to certain criticisms. It is desirable therefore to give some more modern instances.

(3) Amongst these is the epidemic of malaria in the Rajshahi division which occurred between the years of 1905 and 1909 at the time of the construction of the railway line between Godagari-ghat and Katihar. This epidemic was carefully investigated by a Sanitary Officer, namely, Major McCombie Young, who demonstrated that there was a distinct correlation between construction of the railway and the amount of malaria in the districts concerned. The report is available for anyone who wishes to see it. Major Young also pointed out that the mortality amongst the coolies engaged on the work was very high.

(4) An instance of the serious results of lack of knowledge of the guiding principles of malaria came to my notice in 1914 in the arrangements for the construction of the line from Kishanganj to Siliguri. The bungalows for the Chief Construction Engineer, the Assistant Engineer, and the workshop were situated on what appeared to be a very suitable site on the banks of a small river. As a result of this, during the following malaria season the Chief Engineer and his wife, the Assistant Engineer and his wife, and every member of the workshop staff were down with malaria. The provincial preventive staff consisted of myself and two expert malaria officers, who were never consulted in the selection of this site; any of us would have been able to warn the officer responsible for the work that in the Terai the banks of streams were absolutely deadly at certain times of the year. At this date also the only medical staff that was considered necessary for a line some 70 miles in length through probably the most malarious country in the whole of India was one hospital assistant. The amount of sickness and desertion on the part of coolie labour was very high indeed and the Railway Board are probably better acquainted than I am with the large cost of the work due to delays and enhanced rates to contractors caused by lack of proper medical arrangements.

(5) The final example of defective sanitary arrangements in connection with construction work to which I desire to draw attention is that of the Kidderpur Bracebridge Hall dock extension. I do not know whether this combined railway and dock extension scheme comes directly under the cognisance of the Railway Board or not, but the necessity for proper organisation of labour forces is extremely well exemplified in this particular case.

At present a comparatively small labour force is employed because the work is largely confined to the construction of dock gates and river frontage works, for which highly paid and skilled labour is necessary. When the ordinary excavation work of the main dock is commenced a large force of coolies will be required. I have made a careful survey of the whole locality and of the conditions of housing the small labour force which is at present employed, and I may say that the conditions under which these coolies live are extremely bad and require to be changed. The malaria survey of the district shows that there are mosquito breeding places in any number. Anopheline mosquitos also abound. The existing labour force is small, is very well paid, has been located on these sites for a considerable period, and does not contain a large percentage of parasite-carriers. That is the reason why malaria is not at present rife in the neighbourhood, but the advent of 8 to 10 thousand coolies from other parts of India, bringing with them a fair percentage of malaria parasite-bearers, is just the one factor necessary to start a violent epidemic as it did in Bombay in 1908. It is unnecessary for me to go here into details as to what should be done to prevent this evil. The point is that close co-ordination between the Engineering authorities undertaking the work and the Sanitary Department is necessary, if disaster is to be avoided.

5. I think the above instances will be taken as sufficient to prove my point. They could be multiplied almost indefinitely by hunting up the records of Civil Surgeons and Sanitary Officers' reports. Allusion has been made to the epidemic of malaria in Bombay city in 1908. The Railway Board may not be in any way responsible for this, but it is an example of the careless aggregation of labour which brought in its train very dire results. Finally the old idea that cutting the earth and turning up the soil was the cause of malaria is now adequately explained by modern workers as due entirely to the unsatisfactory conditions under which the coolies were housed and looked after. It may be objected that quite a large proportion of the instances given above occurred in Bengal, which is notoriously a malarious country and, therefore, more liable to serious accidents of this nature. I am prepared to admit the force of this contention, but the main reason why Bengal instances are largely chosen is that they are best known to me. I have no doubt in my own mind that conditions are more favourable for serious and widespread epidemics in that Province and in Assam than in most parts of India, but at the same time similar smaller and less important accidents are not unusual throughout the whole of India, and in touring about one frequently hears of them.

6. I do not propose to deal at length with the subject of cholera on railway construction works because malarial epidemics undoubtedly present the greater difficulties and any organisation which is prepared to cope with these will certainly be competent to remove most, if not all, of the dangers of spreading cholera. That cholera is a frequent visitant on railway

construction must be admitted; one has only to meet construction engineers from any parts of India to hear stories of epidemics amongst railway coolies which never find their way into any Government report or against which preventive measures are never undertaken until they have occurred. Very likely there has been an improvement in this direction in recent years, but more is necessary.

7. After so much adverse criticisms of defective methods, it is pleasant to be able to speak most highly of the excellent sanitary arrangements that were made for the construction of the Lower Ganges Bridge. There a skilled and energetic medical officer was appointed, he was given a large preventive staff; he was made a sort of Civil Surgeon of the districts adjoining his work and every possible care was taken of everybody on the work. The Medical Officer in charge worked in co-operation with the Sanitary Commissioner of the Province and received additional help from him in the matter of a Deputy Sanitary Commissioner to advise him on anti-malarial work, and financial assistance was also forthcoming from the local Government. The results of these sound arrangements are better known to the Railway Board than they are to me. The work of construction was completed well in advance of the promised time and, I believe I am correct in saying, with a considerable saving on the budget estimate. But these excellent arrangements should be the rule and not the exception.

8. Before closing I wish to say a few words on the relative importance of each of these three main criticisms given in the early part of this note. A careful perusal of Christophers and Bentley's paper will show the stress they lay on the importance of the aggregation of labour. In all probability this is by far the most important factor in the spread of disease; a great deal of the agitation in the lay press against blocking of drainage and manufacturing of borrow pits is wrong in point of fact, the results they complain about should in reality be brought under this first head. Of course the dangers resulting from the careless aggregation of labour vary enormously in different parts of this country, but practically in no part of the country can the present unsatisfactory arrangements of collecting thousands of coolies together without adequate sanitary precautions or skilled advice be allowed to continue. The results of carelessness under this head are so far-reaching that no amount of trouble and expense must be spared in order to prevent accidents. It is impossible to estimate either the financial loss or the amount of suffering to a large number of innocent individuals that results from a widespread epidemic of malaria. As already pointed out, we are probably still suffering in Bengal from the direct results of an epidemic which was primarily started by the construction of the line between Calcutta and Burdwan in the fifties.

9. As regards the second allegation, it will probably be admitted by all in a position to judge that there is nothing so expensive as ill-health among the labour forces on the construction of a line; it is impossible to estimate the financial loss to Government of say two or three good construction engineers being invalidated home on account of a preventable disease. In how many instances are estimates exceeded and difficulties multiplied tenfold due to sickness amongst the labour? Therefore, from a business point of view, everything should be done to maintain the whole of the employes, from the Chief Engineer down to the lowest paid coolie on the line in a good and efficient state of health.

10. With regard to the results caused by borrow pits and blocking of drainage, I consider that it is impossible to make any general statement; what is true in one place is hopelessly incorrect for another. The blockage of drainage is, in many parts of the country, a very serious affair, but I am inclined to believe that the amount of obstruction that is caused by railway lines that have been constructed, say three years previously, is greatly exaggerated. Of course, it is a sort of parrot cry that the advent of railways always obstructs local drainage. As a matter of fact investigation of many of the lines shows that this is not the case, and the damage to health which is connected with the railways is probably, as already pointed out, due to the first cause and not to the obstruction of the drainage itself. Instances have, however, been brought to my notice where serious obstruction has occurred, and, I regret to say, where it has taken years to get the matter remedied. Very much the same remarks apply to borrow pits. In some parts of the country, borrow pits are most objectionable and are undoubtedly the cause of a good deal of malaria, particularly in such places as round the city of Delhi and Amritsar, in the Doab in the United Provinces, and in other places where flooding and stagnation of water appear to be powerful factors. They are, I consider, a powerful factor in the spread of the disease along the line from Chittagong to Chandpur. On the other hand, there can be little doubt that in many places the borrow pits can have little influence on the health of the local inhabitants. I am inclined to think that in a marshy country like Bengal, their influence on the general health is greatly exaggerated, and that careful investigation would prove this. As in all malaria problems, it is impossible to lay down hard and fast rules, and the only way of solving the problem is to have a careful inquiry made by a skilled officer in places where there may be any reasonable doubt. In the neighbourhood of towns, and close vicinity of railway stations, it is safe to say that borrow-pits are objectionable and undesirable. More than this I do not want to say at present.

11. Within the last decade, the science of epidemiology and preventive medicine have made enormous strides. Much of the work that has been done is naturally not known to Railway and Irrigation authorities and other large employers of labour, but the time has now come when co-ordination between these and the Sanitary Department is pre-eminently desirable. I consider that the best way of attaining this object will be as follows :—

(1) As soon as the Railway Board have decided to construct any portion of a line and have decided on the route to be followed, information shall be given by the Railway Administration to the local Government concerned who will arrange to convene a committee consisting of :—

- (i) Sanitary Commissioner of the Province,
- (ii) Chief Medical Officer of the Railway company.
- (iii) Chief Engineer of the Railway, who is to carry out the construction work,
- (iv) Chief Engineer, Irrigation Department, of the Province,
- (v) Commissioner of the division through which the railway travels or Collector of the district and the Civil Surgeon as may be thought desirable,
- (vi) The Malaria Research Officer of the Province.

(2) This committee will meet, make study of the routes along which the line is to be constructed and will carefully investigate the following points : (they will record their opinion and will report to the Railway Board, and, if necessary, to the local Government).

- (a) The general health conditions of the country through which the line travels particularly as regards malaria.
- (b) The medical staff that will be required in order to supervise the medical and preventive arrangements for the construction of the line.
- (c) To locate the places where hospital accommodation shall be provided.
- (d) As far as is practicable to suggest to the railway company where labour camps should be arranged and what localities to avoid.
- (e) To advise railway company as to the best sources of water supply for the labour forces.
- (f) The Chief Engineer, Irrigation Department, in consultation with the railway engineers will deal with the subject of the interference with natural drainage that might be caused by the railway embankments.
- (g) The committee will also with the help of the Malaria Research Officer study the subject of the influence of borrow-pits on Malaria of the district and will make such suggestions as circumstances demand.
- (h) Some members of the committee preferably the Malarial Research officer and the Sanitary Commissioner will periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that circumstances demand.
- (i) To advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for the regular inspection and improvement of these.

(3) In case of any difficulty the Sanitary Commissioner of the Government of India may be called upon to meet the committee and to decide any point.

12. The main point of these suggestions is to obtain all possible assistance from local Governments in helping the railway construction engineers with the soundest advice on the health conditions they will have to meet during their construction operations. Thus the Sanitary Commissioner, Civil Surgeons of districts and Deputy Sanitary Commissioners, will all be more or less at the disposal of the Railway Department and to assist the medical staff appointed to look after the actual work. I foresee that in actual practice arrangements will be made very similar to those that obtained at the Lower Ganges Bridge. In this instance the Chief Medical Officer was made particularly a Civil Surgeon of a small area; neighbouring villages were put under his control; villages which were likely to act as disseminating centres for cholera and in which the labour resided were provided with a water supply and were regularly visited by his sanitary staff; when the Medical Officer in charge was in difficulty on the subject of malaria a Deputy Sanitary Commissioner was lent in order to investigate any problem. In the event of any matter coming up from the local committee to which the Railway Board were not disposed to agree or which they considered to be unreasonable, they can always appeal to the Sanitary Commissioner with the Government of India, who will be prepared to investigate and

advise. Railway Engineers may consider that the powers allotted to this committee are excessive and likely to interfere with the construction work; they must, however, be prepared for a certain amount of scientific control in matters appertaining to the health of districts. Judging by past results this has now become a necessity. Of course, the price of construction per mile may show some increase in the estimates, but the improved health of the staff will more than balance this, and we hope to do away entirely with the criticism which we are certainly open to at present, namely, that many square miles of territory are ruined from a health point of view owing to carelessness at the time of construction of railways. After all we are only asking for the application of the same principles that were necessary in the instance of the Panama Canal. In this rather extreme example the Panama Canal would never have been built at all had it not been for the thoroughly organised service and preventive medicine. Visitors to the Canal Zone and critics of our administration in India frequently make the remark "why can't the Government of India do something of the same nature in this country." The time has come when we must act more or less on the lines of the American Government when they undertook to construct the Panama Canal through a very unhealthy part of the country. I think that the above suggestions will meet the case of India, at any rate, to commence with. We shall get experience as time goes on and modifications and additions to the above suggestions will certainly be necessary, but, I consider, that the above are a very fair beginning and will result in much good to the community at large.

W. W. CLEMESHA,—27-9-16.

14/7

G. R. S. VI—G/32,

SUBJECT.....

Diary No. of letter replied to... 221

Section *Sany*
File No. *4-19*
Serial No. *2*

GENERAL AND REVENUE SECRETARIAT

()
the

191

No.

Pol 48

Date of issue.

14th July 19

To

*Mr F. A. Resident at
Mysore*

Signed by

M. C. S. B. Iyer

Sir,

I am directed to request

*you to be so good as to kindly
obtain and forward ^{if available} 20*

*Copies of the letter no 4 dated
7/10th June 1919 from the Secy
to Govt of India, Dept of Education
(Sany) to the Secy to the Govt of*

Madras Local Board Dept

*As the Dubai should like to have ^{the} ~~the~~ for
~~the~~ they are referred to the Distribution*

among the officers of ^{over} ~~the~~ ~~Dubai~~

I have etc

*Communicating the Resolution
of the Govt of India on the
subject of the influence
of Hy. Construction on
Public Health*

*14/7/19 *SSB*
11/7/19 *TP**

*Thru *TP* Chief Secy to Govt*

Jan 2
1944

743

1944

Mr. J. A. ...
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List of enclosures.

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Copied by

Examined by

Col 233

R. O. 2.—R. P. B.—2-1919.—2,000.

No. 6338

15 copies of letter & enclos.

DIARY No. 3283

FROM

C.T.C. PLOWDEN,
MAJOR ~~XXXXXX~~ JAMES, I.A.,

FIRST ASSISTANT TO THE RESIDENT IN MYSORE

To

The Chief Secretary to the Government of
His Highness the Maharaja of Mysore.

Dated Bangalore, 16th August 1919.

Samy 6-19-2

With reference to your letter No. Pol.48, dated the 14th July 1919, I am directed to forward 15 copies of the letter No. 4, dated the 7th January 1919, with enclosures, from the Government of India, in the Department of Education, to Local Governments and Administrations, regarding the influence of railway constructions on public health. It is regretted that no more copies are available.

I have the honour to be,

Sir,

Your most obedient servant,

[Signature]

I.S

For First Assistant Resident

12 AUG 1919
Col 233

19 19
SECTION
FILE NO. 4-19
3

16/8/19
4-50

18
PROTECTION BRANCH
18 AUG 1919
SIR,

SUBJECT.....

Diary No. of letter replied to... 221

GENERAL AND REVENUE SECRETARIAT

the 191

Date of issue.....

Signed by.....

4/9
M^r Mr. 2/9
Sd/-

To

The Chief Engineer in
Mysore.

In forwarding herewith
copy of the Madras Govt order
no 521/L, dated 21st April/19
re the influence of railway
construction & on public health
I am directed to request you
to be so good as to intimate what
sanitary arrangements ~~you~~
P.W. authorities propose to take before the
employment of labour on
a large scale.

P.W. authorities

M^r

over.
I have etc

For chief Sanitary to post
Memo copy

20/5

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Section
File No. 4-16

Serial No. 4

is under with p/ol

Q. 12 not p/ol

No. 45649

is under with p/ol

memo 5661 of 4.9.19.

Copy of the above is
forwarded with compliments
to the Sanitary Commission
in Mysore with a request
that the subordinates of
the San. Dept should see
that the arrangements
reported by the P.W. &
authorities are duly
carried out.

128

By order
of the Sanitary Commission

20/9

Sanitary Commission to Govt

to the Sanitary Commission

1/10/19

Sanitary Commission to Govt
to the Sanitary Commission
to the Sanitary Commission
to the Sanitary Commission

List of enclosures.

Sanitary Commission to Govt

Sanitary Commission to Govt

Sanitary Commission to Govt

Copied by

Examined by

SUBJECT.....

Diary No. of letter replied to... 224

Section say
File No. 4-19
Serial No. 5

GENERAL AND REVENUE SECRETARIAT

the

191

No.

45650 to
one

Date of issue...

4/9

To

The Secretary for Railways
The Sanitary Commissions in
The Presidents of District Boards

Signed by...

Mr. J. P. S. Secy.

I am directed to forward
herewith copy of letter No. 521 L of 21st April 1919
containing the resolution of the
Govt of India on the subject of
the influence of Railway construction
on public health and to
request you to be so good as to
forward your views with your
opinion as to the suitable
action to be taken in respect
of the Railway lines in our state

over.

Shanecha

Hod
5/7/19J. W. S. Secy.
Chief Secretary to Govt.

Department of Public Health in Mysore.

OFFICE OF THE SANITARY COMMISSIONER
WITH THE GOVT. OF MYSORE.

Bangalore, dated the 22nd September 1919.

No. G.e 31-3
Enc.

REPLY No. 5523.

From

A. K. PANI, ESQ., D.P.H., etc.

Offg. Sanitary Commissioner with the Government of

H. H. the Maharaja of Mysore, BANGALORE.

To

C. S. Balasundaram Iyer, Esq., B.A.,

Chief Secretary to Government,

Bangalore.

Sir,

(2) With reference to your Memo No.G.5661 dated the 4th Instant, forwarding copy of your letter No.G.5650-60 dated 4th Instant to the Presidents, District Boards, regarding the - - training of candidates for employment as vaccinators, I have the honour to state that no arrangements have been proposed in this connection by the P.W.D. authorities and to request further instructions in the matter.

I have the honour to be,

Sir,

Your most obedient servant,


Offg. Sanitary Commissioner.

M.A.N.22-9-19.

From

The Offg. Sanitary
Commissioner in
Mysore

To

The Chief Secretary to
Government

Dated

22nd Sep 1919

Despatched

8978

Received

General No.

G. B. 31-3

No.

Enclosure No.

34 SEP 1919

Inquiring what instructions
from the P. H. D. have to be
carried out in connection with
the training of vaccinators.

San
del 919

PROTECTION BRANCH.
26 SEP 1919

What does this mean?

hu
20/9

Office of the Deputy Commissioner,
Bangalore District.

Dated Bangalore, 25th November '19.

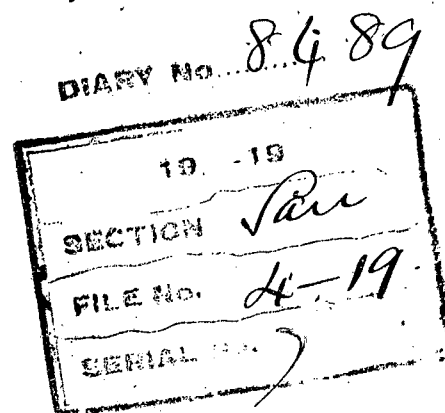
No.....

From

G.Aravamudu Iyengar, Esq., B.A., B.L.,
President, District Board,
Bangalore District.

To

C.S.Balasundaram Iyer, Esq., B.A.,
Chief Secretary to the Government of His Highness
the Maharaja of Mysore, Bangalore.



Sir,

With reference to your letter No.G.5650-60 dated 4th September 1919, calling for my opinion regarding the influence of Railway construction on public health, I have the honor to state that the suggestions made are well considered and may be adopted subject to such modifications as may be necessary in the conditions of the area affected.

I have the honor to be,

Sir,

Your most obedient servant.

G.Aravamudu Iyengar

President,
District Board,
Bangalore District.

L.S.R.
1.

27/14 28.

191

From

The President,
Bangalore District
Board.

To The Chief Secretary to
the Government of His Highness
the Maharaja of Mysore,
Bangalore

Dated 25th November 1919Despatched 26th November 1919

Received.

General No. Dr. Dis 72

No.

L. 7

Enclosure No.

CH. Secy
26 NOV 1919

Stating that the
Suggestions re influence
of Railway Construction
on public Health may be
adopted.

W. J. S.

Jan 29-11-19

PROT. BR. NO. 4.
1- DEC 1919

me
29/11

Office of the President, District Board,

Chitaldrug District.

Dated Chitaldrug, 23rd December 1919.

From

C. Venkata Rao Esquire B.A.

President, District Board,

CHITALDRUG.

To

C. S. Balasundaram Iyer Esquire B.A.,

Chief Secretary to the Government of

His Highness the Maharaja of Mysore,

BANGALORE.

DIARY No. 9915

1919-1920
SECTION Madt
FILE NO. 4-19
SERIAL NO. 8

Sir,

With reference to your letter No. 45650-60-1 dated 24th

~~14th~~ ^{September} 1919 communicating the resolution of the Government of India on the subject of influence of Railway construction on public health and calling for my opinion as to the suitable action to be taken in respect of the Railway lines in the State, I have the honor to state that at present there is only one railway line viz Madras and Southern Mahratta Railway running in this District. So far as this line is concerned no action seems necessary as regards drainage as suitable arrangements have been made on the line to drain off water to the nearest water-courses by means of Bridges and Tunnels. A few old pits are seen in the vicinity of the Holalkere Railway station wherein water stagnates in the rainy season affecting the health of the local inhabitants to an appreciable extent. It is essential that these pits should be ~~be~~ ^{be} ~~red~~ ^{re} ~~dimed~~ ^{med} early at the cost of the railway Department. As ~~reg~~ ^{reg} regards the aggregation of labour on the line, it is sufficient to provide for the regular inspection of the labour camps by the officers of the medical and the Sanitary Department with a view to advise the Revenue authorities as to the actions to be taken to safe-guard the health of the inhabitants of the adjoining villages.

The other line running in the District is Chickla-lur-Chitaldrug line. It is now under construction and a good portion of it runs in a locality of tanks, channels and nallas. Any alteration

h2

in the natural condition of the locality by the blocking of drainage with embankments may seriously affect the health of the rural population and this fact should always be kept in view by the construction Engineers and be suitably provided for by means of a sufficient number of bridges and water-ways. It is stated that the feeder of Makunte Vurumundala tank in Holalkere Taluk has been blocked by an embankment with the result that the lands on the other side of the line have become swampy and unwholesome. This requires closer investigation.

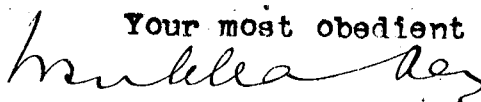
Borrow pits are similarly objectionable in a locality like the one where the line now runs and should not be permitted at all in the close vicinity of villages and the railway stations and staff quarters proposed to be constructed hereafter. If there are already some pits in existence they must be filled up sooner or later or drained off to the nearest water-course.

Far more important than the question of drainage is the question of health of the labour force employed on the work. There is a railway dispensary and a Sub Assistant Surgeon attached to it to look after the official staff and the labour population. In addition to the medical aid given the railway authorities should spare no pains to make adequate sanitary arrangements for the protection of their working staff. The labour camps must always be arranged on healthy localities and be provided with good drinking water. On the whole the railway construction Engineers should pay particular attention to drainage and health conditions of the laborers employed. I suggest further that the officers of the Sanitary Department may be called upon to help the railway construction Engineers with expert advice on the health conditions that should prevail both during the ~~construction~~ construction operation and after the line is opened.

I have the honor to be,

S i r,

Your most obedient servant,



Try: Assistant Commissioner,
For President, District Board,
Chitaldrug District.
(Absent from station).

S.V.

Office of the President, District Board,

Tumkur District,

Tumkur, Dated, 26th December 1919.

from

ANANDA RAO S. SIRSI, ESQUIRE, B. A., LL. B.,
President, District Board,
Tumkur District, TUMKUR.

DIARY No. 11071

19	-19
SECTION	<i>Sec</i>
FILE No.	<i>4-19</i>
SERIAL No.	<i>7</i>

to

G. S. BALASUNDARAM IYER, ESQUIRE, B. A.,
Chief Secretary to Government of His Highness
the Maharaja of Mysore, BANGALORE.

S I R,

I have the honour to request that a copy of letter No.5650-60 dated 4-9-1919 in re the influence of Railway construction on Public Health may kindly be ordered to be sent to this office for reference.

I have the honour to be,

S I R,

Your most obedient servant,

H. V. Subramanya

Vice- PRESIDENT.

T.K.S.

for president absent from
Station.

1919-20.

From

The President,

District Board,

TUMKUR.

To

The Chief Secretary to Government

of His Highness the Maharaja of

Mysore, BANGALORE.

Dated

Despatched 26th December 1919.

Received

General No. B.G.C. 776 of 19-12-19
No. 24

Enclosure No.

2 JAN 1920

SUBJECT.

Requesting to send a copy of the in-
fluence of railway construction on public
health.

San
2-1-20
CHIEF
PROTECTION
3-1-20
JAN 1920

SUBJECT.....

Diary No. of letter replied to... 11071....

Section Sany

File No. 4-19.

Serial No. 10

GENERAL AND REVENUE SECRETARIAT

, the

191

No.

515662

E. 2.

Date of issue.....

10/1

To

The President,

Signed by.....

W. S. C.

St. Board,

Lumpur St.

Sir, I am directed to

W. I am forwarding herewith a copy of this office letter no. 5650-60 dated 4-9-19 re: the influence of Railway construction on public health together with its enclosure, as requested in your letter no. L. 7. G. C. 776 of 19-20 dated

26
30

12-19-19

I am directed to

over.

to request you to kindly intimate
when the information called for
in that letter may be expected
in this office.

I have etc.

223

6/1/20

for lch. secy. to Govt.

220
6.1.20
1088
6/1

List of enclosures.

Copied by

Examined by

Office of the President,

District Board,

Dated Tumkur, the 17th January 1920.

From.

Ananda Rao, S. Sirsi., Esquire, B.A., L.L.B.,

President, District Board,

T U M K U R.

TO,

C.S. Balasundaram Iyer, Esquire., B.A.,

Chief Secretary to the Government of His Highness the

Maharaja of Mysore, B A N G A L O R E.

DIARY No. 13551

1920-19
SECTION <i>Sany</i>
FILE NO. <i>47/9</i>
SERIAL NO. <i>11</i>

S I R,

Adverting to your letter No. G.5650-60 dated the 4th September 1919 on the subject of ¹⁶influence of Railway construction on Public Health I have the honour to state as follows:--

Railway construction is said to lead to malaria and other epidemics such as Cholera if sufficient care is not taken in its organisation. The main causes that bring about this result are also recognised to be three viz., (1) Large aggregations of labour on construction works, (2) the excavation of burrow pits within the boundaries of large towns and railway stations and (3) the interference of railway embankments with the natural drainage of the country. It is also a recognised fact that the first of the above causes is the most important and the most common occurrence on construction works, as want of sufficient care to the requisite sanitary arrangements and to the conditions under which labour should be housed and controlled directly lead to outbreaks of malaria and the general unhealthiness of large tracts of country. The suggestion of the Sanitary Commissioner with the Government of India for the formation of ^acommittee to ~~investigate~~ and advise on the health conditions of congregated labour on Railway construction has the approval of the Government of India and may also be adopted with advantage in the Mysore State. No difficulty in its formation and working can be experienced here, as Railway construction is ^aState undertaking.

18778

191

From The President,
District Board,
TUMKUR.

To The Chief Secretary to the Govern-
ment of H.H. the Maharaja of
Mysore, BANGALORE.

Dated

Despatched

Received

General No. L. 7. G. C. 837/1920
No.

Enclosure No.

Regarding the influence of
Railway construction on Public
Health.

--ooOoo--

San²
not in
etc

h f W
TARIAT
PROTECTION BRANCH.
23 JAN 1920

3. As regards the last cause viz, interference of Railway embankments with the natural drainage of the country, it is easy to avoid this when a new line is under consideration, but when the drainage is already impeded by an existing line, the impediment should be removed in consultation with the various interests concerned.

S i r,

H. Vankatamma
Var President.

for P R E S I D E N T. *about*

Office of the President, District Board,

Mysore District,

Dated, Mysore, the 2nd February 1920.

No. 5894B

4-10

From

P. F. BOWRING, ESQUIRE,

President, District Board of Mysore

M. Y. STORE.

SERIAL NO.

10 -19

8 in

4-19

12

To

C. S. BALASUNDRAM IYER, ESQ., B.A.,

Chief Secretary to the Government of

His Highness the Maharaja of Mysore,

B a n g a l o r e

Sir,

With reference to your letter No.G.5650-60 dated the 4th September 1919 calling for my opinion on the subject of the influence of Railway Construction on Public Health, I have the honour to report as follows :-

In considering the question of the influence of the Railway construction on Public Health, the chief points that are taken into account are (1) Control of large aggregation of labour (2) the effect of borrow-pits and (3) the interference of embankments with the natural drainage of the country.

The Sanitary Commissioner with the Government of India has discussed all the aspects of the question in his note on the subject.- In his opinion the aggregation of labor is by far the most important factor in the spread of malaria during the construction of a Railway line. He considers that the following points should be well investigated before the construction work begins.

- (1) The general health conditions of the country through which -, the line passes.
- (2) The medical staff required.
- (3) The places where hospitals may be located.

2229

191.

From The President,
District Board of Mysore,
Mysore.

To The Chief Secretary to the Govern-
ment of H. H. the Maharaja of
Mysore, Bangalore.

Dated 2nd February 1920.

Despatched

Received

General No. 58746
No.

4-FEB 1920

Enclosure No.

S u b j e c t .

*Re the Influence & Control
of Rythuies on Public Health*

Mr. P. S.

San

PROTECTIVE BRANCH.
4-FEB 1920

(4) Selection of sites for camping labor.

(5) Selecting the best sources of water supply for the coolies.

In order to achieve the above results he thinks that greater co-ordination is necessary between the Sanitary Department and those entrusted with the construction of the Railway. In order to secure this object and for making necessary arrangements for the "Medical and Sanitary supervision of labour", he suggests the appointment of a Committee consisting of Officers of the Railway Sanitation, Medical and Public Works Departments together with the collector of --, the District.

I have the honour to state that ~~in~~ my opinion the proposals -- made on the lines indicated by the Sanitary Commissioner of the India Government may be given a ~~trial~~ ^{over} in ~~over~~state also.

In Mr. Pitt's opinion
As regards the ~~barrow~~ pits, the Sanitary Commissioner is of --- opinion that these cause Malaria only in some cases and that it is however objectionable and undesirable to have them in the vicinity - of Railway Stations.

As regards the effect of the interference of embankments with - the natural drainage of the country, much importance is not attached to this point. It is proposed that Railway excavations should be -- made so as to drain off promptly and not stagnate near inhabited --- areas, that the natural drainage should not be impeded and where it is impeded that impediments should be removed. These suggestions appear to be quite acceptable.

I have the honour to be,

Sir,

Your most obedient servant,

M. J. Balakrishnan
Asst Commr
PRESIDENT,
absent from Head Quarters
District Board of Mysore.

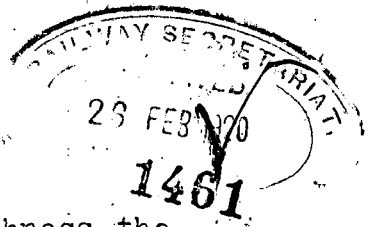
B. S. S.

15999

Office of the President, District Board,
Kolar District,
Dated, Kolar, the 23rd February 1920.

From
Md. Zahiruddin Mecci, Esquire, B. A.
President, District Board, K o l a r.

To
B. Ramaswamayya, Esquire, B.A., B.L.
Secretary to the Government of His Highness the
Maharaja of Mysore, Revenue Department,
B a n g a l o r e.



S i r,

With reference to your D.O. No. G. 17283-7 and my letter
No. L.F.H.C. No. 39 dated 27th and 30th January 1920 respectively,
I have the honour to request that another copy of the Government
of India Regulation regarding the effect of the construction of
Railways on public health may kindly be caused to be sent as the
one received with your letter No. G. 5650-60 dated 4th September
1919 which was ^{sent for} circulated ^{for} among the Officers in the District for
opinion is found to be missing.

I have the honour to be,

S i r,

Your most obedient servant,

S. Shanmugam

For P r e s i d e n t,

Kolar District Board.

W

W. J. S.
Jan
11/2/20
3-3
W. J. S.

Recd
8 FEB 1920

Missent

Forwarded with Compliments to the Revenue
Secretary

Shanmugam
Secretary for Rys

1919-20.

From .

The P r e s i d e n t,
Molar District Board.

To

The Secretary to Government
of Mysore, Rev. Dept.
Bangalore.

Dated 23rd February 1920

Despatched

Received

General No. L.F.H.C. 39/-19-20
No.

Enclosure No.

Re: Requesting the supply of
a copy of the Government of India
Resolution re: the construction of
Railways.

16731

Recd
6542
9-3-20

Office of the President, District Board,
Kolar District,
Dated, Kolar, the 2nd March, 1920.

From

Md. Zahiruddin Mecci, Esquire, B.A.

President, District Board,

Kolar.

PROTECTION BRANCH
12 MAR 1920

To

B. Ramaswamayya, Esquire, B.A., B.L.

Secretary to the Government of His Highness

the Maharaja of Mysore, Revenue Department,

Bangalore.

Sir,

I have the honour to request that a copy of Government
of India Resolution regarding the effect of the construction
of Railways on public health may kindly be caused to be supplied
at an early date as requested in my letter No. H.C. 39/19-20
dated 21st February 1920.

I have the honour to be,

Sir,

Your most obedient servant,

B. Ramaswamayya

For President,
Kolar District Board.

Ch

K.M.

1919-20.

From The President,
Kolar District Board.

23794

To The Secretary to Government
of Mysore, Rev. Dept.

Bangalore.

Dated 2nd March 1920.

Despatched 5 - 20

Received

General No. LA 39 8 MAR 1920

No. 69-20

Enclosure No.

Requesting copy of Government of
India Resolution re: the effect
of the construction of Railways
on Public Health to be supplied.

Mr May

SUBJECT.....
.....
.....

Diary No. of letter replied to.....

Section *Gen*

File No. *4-6*

Serial No. *14*

GENERAL AND REVENUE SECRETARIAT

, the

191

No.

G20727/one

Date of issue.....

8/3/20

To

The President, M. Board, Kolar

Signed by.....

W. B. K.

Sir,

*As desired in your
letter no. L.F. & C. 39/19-20. 723-2-20
I am directed to forward
herewith a copy of the report of
India Resolution on the influence
of Railways Construction
on public health.*

I have etc.

for Chief Secy
5/3/20

over.

Gm BSS

3/6/20

6/3

27/15999
No. H C 442 B 19-20

En route

Office of the President, District Board,

S h i m o g a .

Dated Shimoga the 3rd March 1920.

16303

From

S. Hiriannaiya, Esquire., M.A., B.L.,

President, District Board,

S h i m o g a .

To

C.S. Balasundaram Iyer, Esquire., B.A.,

Chief Secretary to the Government of His Highness

the Maharaja of Mysore, B a n g a l o r e .

Sir,

With reference to your letter No. G. 5650-60 dated 4th September 1919, I have the honour to submit herewith a copy of letter No. 519 dated 16th December 1919 received from the District Sanitary Officer, Shimoga regarding the measures relating to prevention of the baneful influence of Railway construction on Public Health and to state that the measures suggested therein may be adopted.

I have the honour to be,

Sir,

Your most obedient servant,

Hiriannaiya

President, District Board,

S h i m o g a .

H.R.

234.43

1919-20

From

The President, District
Board, Shimoga.

To

The Chief Secretary to the
Government of Mysore,
Bangalore.

Dated the 3rd March 1920.

No. 44 L. B. 19-20
5 MAR 1920
Encl. one

Submits opinion in the matter of
adopting measures for preventing
the baneful effect of Railway
construction on Public Health.

GGGGGGGG

W. J. S.

Sau
5/3/20
3/30

Letter No. 519 dated 16th December 1919 from the District
Sanitary Officer, Shimoga to the President, District Board, Shimoga.

With reference to your No. H.C. 44 of 1919-20 dated 17th
September 1919, I have the honour to inform you that I am of
opinion that the measures suggested by the Sanitary Commissioner
of India are absolutely necessary in our state as Railway Construct-
tion is started in some parts of the state and especially in this
district. Such measures are not only necessary in Railway Construct-
tion works but also in places as Benkipur where labour from all
parts of the state and India is collected. The labour in Benkipur
is not as healthy as it is desirable because it has been observed
that there is much of Malaria among the coolies.

I concur with the Sanitary Commissioner of India as regards
the measures suggested by him for adequately dealing with the
question with the exception of the following two points.

1. Ref. para 4 of the letter from the Secretary, Railway Board,

Our Municipalities are too poor to meet the cost of draining
or reclaiming the existing burrow pits as per his suggestion. I
suggest that the railway authorities may be asked to meet the entire
cost if such draining or reclaiming is absolutely necessary.

2. The Committee suggested by the Sanitary Commissioner in para
11 of his note will have to be modified to suit our conditions. The
Committee may consist of the following.

- (a) The Deputy Commissioner.
- (b) The Sanitary Commissioner.
- (c) The District Sanitary Officer.
- (d) The District Medical Officer.
- (e) The Construction Chief Engineer.
- (f) The Irrigation Chief Engineer.
- (g) The Malaria Research Officer if one is appointed.

The file of papers are also enclosed.

" Copy "

JA

For President, District Board,
Shimoga.

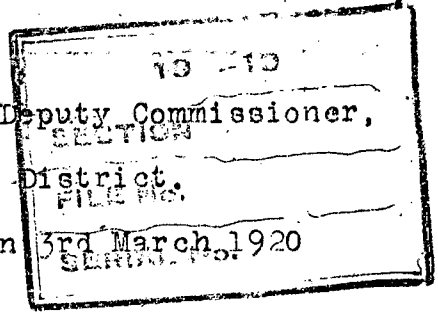
H.R.

1919 - 1920.

Office of the Deputy Commissioner,

Hassan District.

Dated Hassan 3rd March 1920



From

B. Venkoba Rao Esquire, B.A.,

Deputy Commissioner, Hassan District.

To.

C. S. Balasundaram Iyer Esquire, B.A.,

Chief Secretary to the Government of His

Highness the Maharaja of Mysore,

B a n g a l o r e.

Sir,

With reference to your letter No. G. 5650-60 dated 4th September 1919 on the subject of the Influence of Railway Construction on the Public Health, I have the honour to forward herewith copy of the Resolution of the District Board approving of the report of the Sub-committee formed by them to consider the question in detail. Copy of the Sub-committee's report is also enclosed.

I have the honor to be,

Sir,

Your most obedient servant,

Deputy Commissioner,

g Hassan District.

1919-1920.

From

The Deputy Commissioner ^{23.7.20}

Hassan District.

To

The Chief Secretary

to the Government of His Highness the

Maharaja of Mysore.

B A N G A L O R E.

Dated

5/3/20

Despatched.

5/3/20.

General No.

R.O. C 309/L.F.

Enclosures.

Enc. Two

CH. SECY. DEPT.
8 MAR 1920

S U B J E C T.

Re: the Influence of Railway
Construction on Public Health,
the Resolution of the Dist Board
is forwarded herewith.

L.P.S.

San
8/3/20

RECEIVED
PROTESTANT
9-MAR-1920

Resolution of the Sub-committee of the Hassan District Board appointed to consider the question of suitable action to be taken in respect of the Railway lines in our state.

-: 0 :-

R E A D:-

Letter of the Officiating Secretary to the Government of India to the Respective Secretaries of several local Governments and its enclosure.

R e s o l u t i o n s :-

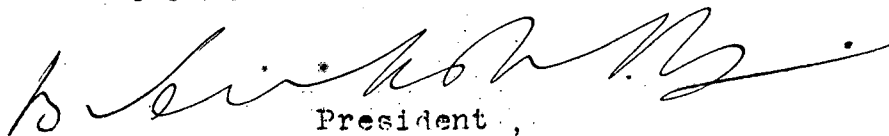
In the case of all new works ~~xx~~ under taken ^{or} ~~are~~ to be undertaken in the State, Committees of Sanitary, Medical and Engineering experts on the lines suggested by the Sanitary Commissioner with the Government of India ~~xx~~ may be appointed to take necessary action, ~~the~~ functions of ~~x~~ the Committee being defined by Government, in each case, according to its nature and magnitude.

2. In the case of existing Railways, the local officers of the Railway administration, Public works, and Medical and Sanitary Departments should study local conditions and suggest remedies for any particular cases they may consider necessary. Such suggestion should be communicated to the local bodies concerned. The Government may be approached ^a by the local bodies or departments concerned to the appointment of a committee for further investigation and such recommendations as they may deem fit.

3. And the local bodies shall be at liberty ^{to} ~~study~~ study local conditions and suggest remedies for any particular cases they may consider necessary. Such suggestions must be communicated to the Railway authorities and if they do not agree to the suggestions made by them, Government may be approached by the local bodies for further investigation and necessary recommendations.

Signed/N.S.Nanjundiah, (Convener)
Vice President, District Board,
Hassan District

"C O P Y "


President,
District Board,
Hassan.

Proceedings of the Meeting of the District Board held on
25th February 1928.

Present:- B. Venkoba Rao, Esq B.A., President.

Ex-officio members:-

1. B. Venkoba Rao Esquire, B.A., Deputy Commissioner President.
2. Mr. J. Ball Assistant Commissioner, Police and Public Safety Division.
3. Mr. C. Rudrappa, Assistant Commissioner, Revenue and Public Safety Division.
4. Mr. D. Narayana Rao, Assistant Commissioner, Police and Public Safety Division.
5. Mr. A. Krishna Rao, District Sanitary Officer, Hassan.
6. The District Medical Officer - Hassan

Non-official Members.

1. Mr. B. Alimnara Char, Hassan.
2. " Mohamed Hussain, "do"
3. " M. S. Crawford, Chikmagalur.
4. " A. T. Sankarappa, Belur.
5. " B. Narayana, "do"
6. " B. Ramaswamyengar, Hassan Taluk.
7. " A. V. Suryanarayanaiah, Arkalgud.
8. " Nagappaiah, Holenarasipur.
9. " Maralashidappa, Aracikere.
10. " Teerathnagarappa, Alur.
11. " B. Narayana.
12. " Dr. Krishna Rao, "do"
13. " B. Narayana.
14. " Thirunagappaiah, "do"
15. " B. Narayana.
16. " B. Narayana.
17. " Nani Mahadevarappa.
18. " B. Narayana.
19. " Shama Char.
20. " Subrahmanya Char.
21. " B. Narayana.
22. " B. R. Narayana.
23. " B. C. Narayana.

Absent.

Ex-officio Members.

1. The Executive Engineer, Public Works Division.
2. The District Medical Officer - Hassan.
3. The District Inspector of Education - Hassan.

Non-official Members.

1. Mr. C. Venkateswara.
2. " Mohamed Hussain.
3. " G. S. S. Venkateswara.
4. " G. S. Puttu Rao.
5. " M. Choudhary.

Read:- Chief Secy's Letter No G. 5650/60 dtd 14 Sept-1919 requesting opinion in the matter of the Resolution of the Govt of India on the subject of Influence of Railway Construction on Public Health, as also the resolution of the meeting of the Sub Committee appointed by the District Board for discussing the subject.

Resolution.

18.563

(R.S.1)

RAILWAY SECRETARIAT,
CENTRAL OFFICE

Mysore, 8th April 1920

No. 1745
1746

From

D. G. Dani, Esq., B.Sc., F.C.H.,

SECRETARY TO THE GOVERNMENT OF MYSORE FOR RAILWAYS,

MYSORE.

To

The Chief Secretary to the Govt. of
His Highness the Maharaja of Mysore,
Bangalore.

SIR,

In reply to your letter No. G.5650-60 d/4-9-1919,
forwarding copy of G.O. No.521/L, dated 21-4-1919 re:
the influence of Railway construction on public health,
I have the honour to forward herewith a copy of my - -
Superintending Engineer's Note on the above subject - -
according his opinions thereon and to state that I - -
agree with him.

I have the honour to be,

Sir,

Your most obedient servant,

[Signature]
8/4

Secretary for Railways,
Government of Mysore.

B.V.C.

[Signature]
8/4

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[Handwritten notes]
Jan
9/4/20

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The Secy
APR 1920

Note on the influence of Railway Construction on
public health by Mr.K.Ananthacharya, Superintending
Engineer, Mysore Railways.

=====

1. I am of opinion that barrow pits should not be excavated within the Municipal Boundary of any town. From experience of Railway construction over 5 years and also on large public work for number of years, I think stagnated water in pits produces Malaria in places where imported labourers are congregated and not in other places. To make the point clear, it is generally the case that imported labour come from completed large works with ingrained malarial poison, and when they fall ill they spread infection. In such cases only the locality becomes malarious. As to the draining of existing burrow I quite agree that it should be done entirely by Ry. Department if the Municipalities do not come in for a share.
2. I agree that when excavation had to be made (in case of prohibitive cost of carriage of earth) the pits to be shallow not more than $1\frac{1}{2}$ feet deep and the depth should be uniform. Each pit should be connected and the last one drained off the nearest water course not allowing water to stagnate.
3. On large works it is quite essential that adequate and proper medical aid should be provided to look to the laying of cooly camps; sanitary arrangements and treating the sick. It is also of utmost importance to provide good drinking water by sinking wells where regular water supply cannot be had.

=====

(copy)
C. Ananthacharya
8/4/20

Office of the President District Board,

Kolar District,

Dated, Kolar, the 6th April 1920.

From

Md. Zahiruddin Mecci, Esquire, B.A.

President, District Board, K o l a r.

To

C. S. Balasundaram Iyer, Esquire, B.A.

Chief Secretary to the Government of His Highness

the Maharaja of Mysore, Bangalore.

S i r,

With reference to your letter No. G. 20727 San.

4-19-14 of the 8th March 1920 forwarding for opinion a copy of Government of India resolution on the subject of the influence of Railway construction on public health, I have the honour to state the Board are in general agreement with the views of the Sanitary Commissioner with the Government of India.

I have the honour to be,

S i r,

Your most obedient servant,

Abdunnasir

For President,
District Board Kolar

Abdunnasir

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1919-20.

From

The President,
District Board, Kolar.

To

The Chief Secretary to Government
of Mysore, Bangalore.

Dated 5th April 1920.
Despatched 10
Received 12 APR 1920
General No. D/O No. 53
No. 17.20
Enclosure No.

stating that the Board are in
agreement with the views of the
Sanitary Commissioner with the Govt. of
India re: the influence of railway
construction on public health.

W. G. P.
O. SECTION BRANCH.
13 APR 1920

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Sey 4-19-20

TELEGRAPHIC
ADDRESS
Mysore works.

No. M. 11905

MYSORE P. W. DEPARTMENT.

CENTRAL OFFICE.

Bangalore 10th May 1920

22 Sept 1920

From
12-3-520

S. CADAMBI, Esq.,

Chief Engineer of Mysore,

Bangalore.

To

C.S. Balasundram Iyer, Esquire, B.A.,

Chief Secretary to Government, Bangalore.

Sir,

With reference to your letter No. G. 5649/Sany. 4-19-4 dated the 4th September 1919, forwarding a copy of the Madras Government Order No. 521 L, dated the 21st April 1919, regarding the influence of Railway construction on Public Health and requesting to be informed of the Sanitary arrangements, Public Works Authorities propose to take, before the employment of labour on a large scale, I have the honor to state that the Chief Engineer, Cauvery Valley Irrigation, and the Agent, Mysore Railways, were addressed in the matter, and copies of the marginally note

----- } communications received from
Memo No. 1729 dated the 18th December 1919 }
together with its enclosure from the --- } them on the subject are here
Chief Engineer, Cauvery Valley Irrigation }
Letter No. 13115 dated the 8th April 1920 }
together with its enclosure from the -- }
Agent, Mysore Railways. }
----- }

2. The general site plan

of works at Krishnaraja

Sagara showing the position of labour camps etc, is herein enclosed.

I have the honor to be,
Sir,

Your most obedient servant

R. Sundaram
For Chief Engineer of Mysore

192

MYSORE P. W. DEPARTMENT.

No.

From

THE CHIEF ENGINEER OF MYSORE,

Bangalore.

To

Dated Bangalore

Despatched

Enclosure No.

SUBJECT.

Letter No.1261 dated 9th/10th December 1919, from the Superintending Engineer, Krishnaraja Sagara Works, to the Chief Engineer, Cauvery Valley Irrigation, Bangalore.

With reference to your No.1265 dated 5th December 1919, forwarding a copy of the Madras Government Order No.521-L dated 21st April 1919, regarding the influence of Railway Construction on Public Health and calling the set of rules now in force at Krishnaraja Sagara Works, I have the honor to submit herewith a copy of the rules framed during 1918, in consultation with the Sanitary Commissioner and adhered to since then. It will be seen from these rules and the position of the camps as shown on the accompanying general site plan of works, that all the sanitary precautions referred to in the Madras Government Order have been taken and continue to be taken. For the execution of necessary works connected with sanitation, two Engineer officers one on each bank have been deputed, who in consultation with the Assistant Surgeon stationed at Krishnaraja Sagara, have been attending to the needful. Further all important matters connected with sanitation are discussed in the Engineer's meetings and immediate action taken in accordance with the resolutions.

2. The original enclosures sent with your reference are herewith returned.

&&&&&&&&

No.1729 Dated Bangalore the 18th December 1919.

Copy of the above, together with copy of its enclosure, ^{is} ~~are~~ forwarded, with compliments, to the Secretary to Government

Public Works Department, with reference to his No.M.6267 dated
3rd December 1919.

2. The enclosures received with the reference under reply are
herewith returned.

(sd) K.Krishniengar,

Chief Engineer,

Cauvery Valley Irrigation.

" C O P I E S "

K. P. Mahalingam

Assistant Secretary,
Public Works Department.

P.N.S./10-5-20

Sm

Cauvery Reservoir Works:

Sanitation.

-(RULES):-

1. A number of quarantine sheds should always be kept ready in which all recruits coming from different places may be kept under observation for a fortnight.
2. Any case of illness among the new arrivals should be at once segregated and treated.
3. If the observed disease is of a contagious nature, the patient should at once be removed to the ^{isolation} ~~isolated~~ sheds and treated there. The ^{contacts} ~~contacts~~ of the patient should be isolated in the observation sheds, which should have water taps, latrines, kitchens etc.
4. Where the permanent quarantine sheds erected are not used by subsequent gangs of labour, shed materials will be distributed to them for constructing their own quarantine sheds, in the place set apart for the purpose under strict supervision.
5. As far as possible, the new arrivals in the quarantine sheds should not be allowed to visit or be visited by others in the old camps during the period of observation.
6. As the labour imported has to be given work, ^aendeavours will be made as far as possible to give them work so as to keep them away from the other work people.
7. A permanent Sanitary Inspector or Assistant Sanitary Inspector should be appointed for the works. He must go round the camps on the North and South Banks on alternative days, and examine every hut and report every case of illness to the Medical Officer.
8. The Sanitary Inspector should see that latrines in the camps are thoroughly cleaned twice a day, and the surroundings of the camps kept clean.

- (a) The Sanitary Inspector should see that waste water is not allowed to stagnate round the stand pipes.
 - (b) The conservancy staff should work under the immediate orders of the Sanitary Inspectors.
 - (c) The Sanitary Inspector should attend to the final disposal of the night soil either by the trenching system, or by being sold to the ryots for use as manure.
 - (d) Under the supervision of the Medical Officer, the Sanitary Inspector and the Conservancy staff should be engaged in carrying out anti-malarial measures during the season.
9. All the camps of the coolies, wherever practicable, should be supplied with filtered tap water; distant and detached being supplied from wells, thus preventing the river water from being polluted as far as possible.
10. A dozen well-built sheds should be kept ready, one or two furlongs away from the coolie camps on both the banks of the river to receive patients suffering from contagious disease. These should have water taps, a kitchen and two latrines.
11. The Sanitary Inspector should be required to keep an accurate register of births and deaths.
12. The Sanitary Inspector should keep an accurate account of children vaccinated and unvaccinated.
13. The Sanitary Inspector should keep regular diaries of his daily work and show them to the Medical Officer, who will generally supervise the work of the Sanitary Inspector, and submit copies of the Inspector's diaries monthly to the Superintending Engineer - who, in turn will forward the same with his remarks to the Sanitary

Commissioner, if necessary.

14. Any case of cholera or plague occurring in the camps will be reported at once to the Sanitary Commissioner.

15. Daily returns of attacks and deaths prepared by the Medical Officer, Cauvery Reservoir Works, should be submitted by the --
Superintending Engineer to the Sanitary Commissioner until the disease subsides.

(sd) B. Subba Rao,
Superintending Engineer,
Cauvery Reservoir.

~~~~~

" C O P Y "

*[Handwritten Signature]*

Assistant Secretary to Government,  
Public Works Department.

P.N.S/15-5-20

*[Handwritten Initials]*

Letter No.13115 dated 8th April 1920, from the Agent. Mysore  
Railway, to the Chief Engineer of Mysore, Bangalore.

-----

In reply to your letter No.7547 dated 16-1-20 forwarding copy  
of G.O.No.521/L.dated 21-4-1919 regarding the influence of Rail-  
way Construction on public health, I have the honor to forward -  
herewith a copy of my Superintending Engineer's Note on the above  
subject, according his opinions thereon and to state that I agree  
with him.

\*\*\*\*\*

" C O P Y "

*K. P. Mahalingam*

Assistant Secretary,  
Public Works Department.

*Sm*

P.N.S/10-5-20

Office of the Deputy Commissioner,

Kadur District.

Dated Chikmagalur, 15th January 1921.

From

K Mylar Rao Esq., B.A., B.L.,

Offg. Deputy Commissioner,

Kadur District.

To

C.S. Balasundaram Iyer, Esq., B.A.,

Chief Secretary to the Government

of His Highness the Maharaja of Mysore

Bangalore.

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Sir,

With reference to your letter No.G.5650-60 of the 4th September 1919, forwarding a copy of the resolution of the Government of India on the "Influence of Railway -- construction on Public Health" and asking me to report as to the suitable action to be taken in respect of the Railway Lines in the State, I have the honour to state as follows:-

2. The Resolution directs that attention should be paid to the following three points to guard against the construction of Railway Lines.

- (a) Congregation of labour,
- (b) blocking of drains,
- (c) digging of borrow-pits.

3. On the above points, I consulted the Municipal and Taluk Boards through which the Railway lines pass in this District, and also the District Sanitary Officer. Excepting the Municipal Councils of Birur and Kadur, the others have sent in their replies and copies of the same are herein enclosed.

4. The main point in the note drawn up by the Sanitary Commissioner with the Government of India is that adequate Medical and Sanitary arrangements should be made during the construction of large works including Railways and

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WD 0463—GPB—3,00,000—21-7-17—S.

1921

From The Deputy Commissioner  
Madras District.

To The Chief Secretary to the  
Government of Mysore,  
Bangalore.

Dated 15<sup>th</sup>

Despatched

Received

General No.  
No.

} January 1921.

GEN & REV. S.

Ch Secy

HC. 163

18 JAN 1921

Enclosure No. Five resolutions  
copies done letter copy -

Furnishes opinion regarding  
the influence of Railway construction  
on Public Health -

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86-1-25  
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19 JAN 1921

that the details of the arrangements should be determined by a Committee of Officers belonging to Medical, Sanitary, Revenue and Engineering Departments. This is an excellent proposal which should be adopted at once. The want of co-ordination between the Railway and the Sanitary Departments has led in Tarikere to some borrow-pits being sunk recently by the Railway Department within the Municipal limits, which are a source of danger to the people living in the neighbourhood. This would surely have been avoided if there was a Committee of the kind suggested to advise the Railway Department not to sink such pits.

5. As regards the cost of filling up or draining of borrow-pits which may be sunk in the course of construction of a work, it seems only reasonable that the Department by which the work is undertaken should be made to bear it. .

7. It is understood that it is only in Tarikere that there are at present some borrow-pits which require to be filled up. The Municipal Council propose that one-half of the cost of filling them up be borne by the Railway Department. They will be asked to make a separate reference in regard to this matter.

I have the honour to be,

Sir,

Your most obedient servant,

*T. N. S. Rao*

Offg. Deputy Commissioner,  
Kadur District.

D.S.R.

Docket No. 281 dated 17th February 1920, from the Health Officer Kadur District, to the Deputy Commissioner, Kadur District.

=====

With reference to your memo No. H.C. 163/19-20 dated 15th September 1919, calling for <sup>my</sup> opinion on the "Influence of Railway construction on public health" in <sup>the</sup> Kadur District etc, I have the honor to state that the note prepared on the subject in general by Lieutenant Colonel Clemesha is sufficiently exhaustive and appears to be applicable to this part of the country as well. The Railway lines in this district extend from Devanur to Shivani, Devanur to Tarikere and Tarikere to Narasimharajapura in different directions. The line from Devanur to Shivani runs in a maidan country, while the other two lines are in malnad tracts. In the malnad, the malarial element is largely prevalent without any other foreign influence. We have no statistics of previous years to compare with the results obtained after Railway construction regarding the spleenic Index. In the Kadur and Tarikere Taluks, where the Railway runs, there is very little of malaria and that much would perhaps have existed considering other local conditions, even if there were no Railways. There is absolutely no doubt that the burrow pits by the lines are favourable spots for breeding malarial and other kinds of mosquitoes as it may lead to stagnation of water during rains. More than malaria, the Railway communication is responsible for the spread of infectious diseases as plague and cholera.

Further when a Railway line is being opened the large number of coolies employed may import malaria or any other epidemic disease. It is in the first place necessary to have sufficient medical supervision over the labour population and secondly, there should be a proper understanding between the Railway authorities and the local sanitary Officer of the place regarding the dangers of importing new diseases to the localities as a result of any works undertaken by them.

In conclusion, I have to state that the public health department should be in constant consultation with the Railway Board whenever a new line is opened. Next a committee consisting of the Health

Health Officer of the District and the Railway authorities working in the area should be formed and discuss details regarding the remedies to be adopted for preventing necessary evils which have already resulted owing to the construction of Railways.

" C O P Y "

*K. M. S. Narayan*

Deputy Commissioner,  
*mea* Kadur District.

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Recd from Muhammad  
for President



(Pd) (H. Gardienzen  
President -  
18-3-20.

ಪ್ರೈಸಿಂಗ್ ಕೆಂಗ್ ಕಂಪನಿ, 4-1920

రెండు పేర్లు ఇచ్చిన కవలమకు, Absent  
ప్రేమలేంటు కవల - Present

Ex-officio members.

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4 " ಮೈಸೂರು ವರು (ಅರೇಬ್‌ನವಂಶ) Present

నేంపట్ల రామకృష్ణదాసు (అంకవడి) Abient

2 (రీ) పట్టణ వారు (అక్కపర్) — Present

- (తెలుగు భాషా శాస్త్రము) Absent

మొదటి పుస్తకము

ಮೃ. ಕಿಚ್ಚು ಬೆಂಕಿವಕ್ಕಿ ಕೊಂಬರವರು — Present

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S. B. K. Absent

పుష్కర్యువవసు. - ~~Present~~ Absent

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మొత్తం రూ. 15000 కంటే ఎక్కువగా ఉంటే 163 నిబంధన ప్రకారం

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*W. G. A. S.*

(8d) 6 N Gändien dan

for President

Department of Public Health in Mysore.

OFFICE OF THE SANITARY COMMISSIONER  
WITH THE GOVT. OF MYSORE.

Bangalore, dated the 11<sup>th</sup> April 1921.

No. 9C80-4.  
Enc. One

DIARY NO. 21367

From

A. K. PANI, Esq., D.P.H., etc.,

Offg. Sanitary Commissioner with the Government of

H.H. the Maharaja of Mysore, BANGALORE.

To

B. Ramasawmaiya, Esq., B.A., B.L.,  
Secretary to the Government of Mysore,  
Revenue Department, Bangalore

Sir,

With reference to your letter No. G.14841/San. dated the 29th January 1921 as to the suitable action to be taken in the matter of counteracting the adverse influences of railway construction on Public Health, I have the honor to state that as will be seen from the memorandum of the Sanitary Commissioner with the Government of India the problem hinges on the efficiency of control of congregated labour in so far as medical supervision, housing the labourers and the several sanitary arrangements are concerned. The issues that arise have thus a very much wider scope than that signified by railway construction alone. Any action in this direction must therefore form part of a comprehensive scheme having for its object the removal of dangers attendant on the uncontrolled aggregation of labour not merely for railway construction but for other large works carried out through Government Agency or by private enterprise.

In submitting the accompanying draft rules for the consideration and orders of Government I beg to point out that, perhaps with a view to emphasize the need for careful sanitary precautions on occasions of congregations of

*Ans.*

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From

The Sanitary Commissioner  
in Mysore,  
Bangalore.

To  
The Rev. Secretary to the  
Government of Mysore,  
Bangalore.

Dated // . 4 . 21

Despatched // . 4 . 21

Received

General No. 4080-4  
No.

GEN & REV. SECY  
Ch Secy  
12 APR 1921

Enclosure No. one

Submitting draft rules re-  
lating to the sanitary and medical  
supervision of labour on the oc-  
casion of railway construction  
or other large public works.

17/4  
12/4/21

12 APR 1921

of labor, due weight has not been given in the enclosures received with your letter, under reply to the importance of dealing with the anophelene mosquito and giving sufficient attention to their breeding grounds. Conceding that the advent of coolly labor constitutes the starting point for the malaria cycle in any tract it seems equally true that no epidemic can persist unless there is the anophelene mosquito in enormous numbers to keep it up. Recent literature on the results of efforts made in other countries to keep down malarial epidemics shows that a tract is unhealthy, from the point of view of malaria, in proportion to the degree of mosquito infestation and that a diminution in the number of mosquitoes is followed by a lessened incidence of the disease.

3. It will also be observed that the Railway Board <sup>that</sup> suggest ~~the~~ within the Municipal boundaries of any town with over 10,000 inhabitants, no new barrow pits should be dug by railways and that the existing barrow pits, if any, should be drained or reclaimed as occasion offers, in consultation with the Municipal Authorities, half the cost being borne by the local body concerned. It appears to me to be arbitrary to limit the observance of these precautions to only large towns. The aim should be to abolish <sup>barrow pits</sup> all/existing within half a mile of any town or village. If careful enquiry reveals that endemicity of malaria is due to the influence of barrow pits or to impediments to natural drainage anti-malarial measures are indicated, irrespective of the size or the population of the town or village.

I have the honor to be,

Sir,

Your most obedient servant.

  
Offg. Sanitary Commissioner.



## Draft Rules.

-----

The following rules are issued with a view to minimise the risks of the spread of communicable diseases as the result of firstly the ~~/~~ uncontrolled congregation of labour on occasions when railway or other large construction works are undertaken and secondly the changes in the natural condition of the locality occasioned by the work, such as embankments, impediments to natural drainage, borrow pits &c.

2. The aim is to secure a close co-ordination between the Sanitary Department and the authority responsible for the construction work so as to ensure that the necessity for proper arrangements for the Medical and Sanitary supervision of labour is not overlooked. Equally when the question is one of the prevention or the removal of impediments to natural drainage or of other conditions favorable to ill-health, the best results will be secured by consultation among the departmental officers and discussions of the various interests involved.

3. For this purpose, a Committee will be constituted, consisting of:-

1. the Senior Surgeon
2. the Sanitary Commissioner
3. the Chief Engineer
4. the Chief Engineer, Railway Construction department
5. the Deputy Commissioner of the district
6. through which the railway passes or in which the construction ~~will~~ work is undertaken.
- \* ~~6. the District Medical & Sanitary Officers.~~

4. As soon as the construction of any portion of railway line and the route to be followed have been decided upon, the Chief Engineer, Railway Construction Works will arrange to convene a meeting of the Committee.

5. The Committee will meet, make study of the routes along which the line is to be constructed and will carefully investigate the following points:-

- (a) the general health conditions of the country through which the line travels particularly as regards malaria;
- (b) the medical and sanitary staff <sup>that</sup> will be required,
- (c) the places where labour camps should be arranged and what localities to avoid,
- (d) the sources of water supply for the labour forces and

*Am*

- (e) the arrangements that should be made in the various places along the line to prevent interference with natural drainage that might be caused by the Railway embankments.

6. The Committee will also study the subject of the influence of borrow pits on malaria of the district and will make such suggestions as circumstances demand.

7. It is open to the Committee to advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for all regular inspection and improvement of these.

8. The District Sanitary Officer and the Sanitary Commissioner should periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that may be found necessary.

9. The Committee will record their opinion and report to the Chief Engineer, Railway Construction Department sending a copy of the report at the same time to the Chief Secretary to Government

10. Among other things, the Committee should consider the possibility of water logging in the area due to the interruptions of the natural flow of water by embankments, ~~khana~~ canals &c., and ~~advise~~ advise upon the best means of avoiding such possibility.

11. Procedure similar to that outlined in the preceding paragraphs should be adopted in case of other large public works than railways, the officer responsible to convene the meeting and to obtain the advice of the Committee being, in this case, the Chief Engineer, Public Works Department.

12. As a rule, no railway operations or other large public works should be started before orders of Government are obtained on the proposals definitely formulated by the Committee.

13. In the case of large works controlled and managed by private agencies the Sanitary Commissioner should in consultation with the Senior Surgeon take such steps as are necessary to ensure proper medical and sanitary arrangements during the aggregation of labour.

14. When there is reason to believe that the health of the people of a particular town or village is prejudicially affected

*am*

affected by the existence of borrow pits or by serious obstruction to the natural drainage of the area the Sanitary Commissioner may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise for filling up the borrow pits or draining the excavations. When a scheme is proposed in this direction likely to impose expenditure on the Railway, the ~~regi~~ requisition to the Railway Authorities to carry out the drainage or reclamation ~~of Government~~ <sup>made</sup> should be by the local authority with the previous sanction of Government.

15. In cases where a large labour force is stationed, permanently or for a long time at any place in connection with large Industries, it shall be the duty of the Sanitary Commissioner to make inspections from time to time and bring to the notice of Government deficiencies if any, in the Sanitary arrangements made and in the conditions under which labour is housed and controlled.

  
Offg. Sanitary Commissioner.



GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE,  
GENERAL AND REVENUE SECRETARIAT,

Dated, Bangalore

16<sup>th</sup> August 1921

No.

L. 932

Jan 4-19-23

NOTIFICATION.

~~The following Rules relating to the Sanitary and Medical supervision of labour on the occasion of railway construction or other large public works, are hereby published for general information.~~

The following rules are issued with a view to minimise the risks of the spread of communicable diseases as the result of firstly, the uncontrolled congregation of labour on occasions when railway or other large construction works are undertaken and secondly, the changes in the natural condition of the locality occasioned by the work, such as embankments, impediments to the natural drainage, borrow pits, etc.,.

~~2~~ The aim is to secure a close co-ordination between the Sanitary Department and the authority responsible for the construction work so as to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked. Equally when the question is one of the prevention or the removal of impediments to natural drainage or ~~the removal of~~ other conditions favourable to ill-health, the best results will be secured by consultation among the departmental officers and discussion of the various interests ~~is~~ involved.

~~3~~ For this purpose, a Committee will be constituted, consisting of :--

1. The Senior Surgeon.
2. The Sanitary Commissioner.
3. The Chief Engineer of Mysore.
4. ~~or the Engineer-in-Chief for Rgs.~~ The Deputy Commissioner of the District through which the railway passes or ~~the~~ in which the construction work is undertaken.

13/8

h. B. O.

(4) As soon as the construction of any portion of a railway line and the route to be followed have been decided upon, the Engineer in <sup>chief</sup> ~~charge~~ for Railways will arrange to convene a meeting of the Committee, which is hereby constituted, consisting of

1. The S<sup>r</sup> Surgeon
2. The Secy to Govt
3. The M. D. S. or the Eng<sup>r</sup> in Chief for R<sup>r</sup>s (as the case may be)
4. The D. C. or the D. C. who the R<sup>r</sup> passes, or who the R<sup>r</sup> crosses, or who the R<sup>r</sup> is undertaken

(2) The Committee will meet, make a study of the routes along which the line is to be constructed <sup>and</sup> carefully investigated the following points:-

- (a) the general health conditions of the country through which the line travels particularly as regards malaria;
- (b) the medical and sanitary staff that will be required
- (c) the places where labour camps should be arranged and what localities to avoid;
- (d) the sources of water supply for the labour forces and
- (e) the arrangements that should be made in the various places along with line to prevent interference with natural drainage that might be caused by the Railway embankments.

(3) The committee will also study the subject of the influence of narrow pits on malaria in the district and will make such suggestions as circumstances demand.

(4) It is open to the Committee to advise what villages in the neighbourhood are likely to be centres of spread of diseases and to provide for the regular inspection and improvement of these

(5) The District Sanitary Officer and the Sanitary Commissioner should periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that may be found necessary.

(6) The Committee will record their opinion and report to the Engineer in Chief for Railways sending <sup>a</sup> copy of the report ~~at~~ at the same time to the Chief Secretary to Government.

(7) Among other things, the Committee should consider the possibility of water logging in the area due to the interruptions of the natural flow of water by embankments, canals &c., and

advise upon the best means of avoiding such possibility.

(8.) Procedure ~~similar to~~ that ~~was~~ <sup>outlined</sup> ~~omitted~~ in the preceding paragraphs should be adopted in case of large public works, other than railways, the officer responsible to convene the meeting ~~in~~ and to obtain the advice of the Committee being, in this case, the Chief Engineer, Public Works Department.

(12.) As soon as construction of a large work is decided upon a meeting of the Committee should be convened and proposal formulated. Work ~~may~~ may be started pending Government Orders, but the arrangements from the very commencement of the work should be in accordance with the proposals.

(13.) In the case of large works controlled and managed by private agencies, the Sanitary Commissioner should in consultation with the Senior Surgeon take such steps as are necessary to ensure proper medical and sanitary arrangements during the aggregation of labour.

(14.) When there is reason to believe that the health of the people of a particular town or village is prejudicially affected by the existence of borrow pits or by serious obstruction to the natural drainage of the area, the Sanitary Commissioner may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise for filling up the borrow pits or draining the excavations. When a scheme is proposed in this direction likely to impose expenditure on the Railway, the requisition to the Railway Authorities to carry out the drainage or reclamation should be made by the local authority with the previous sanction of Government.

(15.) ~~in~~ In cases where a large labour force is stationed permanently or for a long time at any place in connection with large industries, it shall be the duty of the Sanitary Commissioner to make inspections from time to time and bring to the notice of Government deficiencies, if any, in the Sanitary arrangements made

and in, the conditions under which labour is housed and controlled.

By Order,

*hm*  
*4.8.21*  
*23*  
Secretary to Government,  
*3/6/21* Revenue Department.

To

The Compiler, Mysore Gazette, for favour of publication in  
the Gazette and for supplying 200 ~~exp~~ spare copies  
to this office.

*No* *L. 1069-80*  
*27.24.8.21*  
Copy forwarded to the Offg. Sanitary Commissioner in Mysore.  
Senior Surgeon in Mysore.  
" Chief Engineer, P.W.D.  
" Engineer in charge ~~mk~~ for railways.  
" Deputy Commissioners of Districts.

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PRESS TABLE.

ACH.3.

## REVENUE.

No. L. 932—San. 4-19-23, dated 16th August 1921.

### *Rules relating to the Sanitary and Medical supervision of labour on the occasion of railway construction or other large public works.*

The following rules are issued with a view to minimise the risks of the spread of communicable diseases as the result of, firstly, the uncontrolled congregation of labour on occasions when railway or other large construction works are undertaken, and secondly, the changes in the natural condition of the locality occasioned by the work, such as embankments, impediments to the natural drainage, borrow pits, etc. The aim is to secure a close co-ordination between the Sanitary Department and the authority responsible for the construction work, so as to ensure that the necessity for proper arrangements for the medical and sanitary supervision of labour is not overlooked. Equally, when the question is one of the prevention or the removal of impediments to natural drainage or of other conditions favourable to ill-health, the best results will be secured by consultation among the departmental officers and discussions of the various interests involved.

1. As soon as the construction of any portion of a railway line and the route to be followed have been decided upon, the Engineer-in-Chief for Railways will arrange to convene a meeting of the Committee, which is hereby constituted, consisting of:—

1. The Senior Surgeon.
2. The Sanitary Commissioner.
3. The Chief Engineer or the Engineer-in-Chief for Railways (as the case may be).
4. The Deputy Commissioner of the District through which the Railway passes, or

in which the construction work is undertaken.

2. The Committee will meet, make a study of the routes along which the line is to be constructed and carefully investigate the following points:—

- (a) the general health conditions of the country through which the line travels particularly as regards malaria;
- (b) the medical and sanitary staff that will be required;
- (c) the places where labour camps should be arranged and what localities to avoid;
- (d) the sources of water-supply for the labour forces and
- (e) the arrangements that should be made in the various places along with line to prevent interference with natural drainage that might be caused by the Railway embankments.

3. The Committee will also study the subject of the influence of borrow pits on malaria in the district and will make such suggestions as circumstances demand.

4. It is open to the Committee to advise what villages in the neighbourhood are likely to be centres of spread of disease and to provide for the regular inspection and improvement of these.

5. The District Sanitary Officer and the Sanitary Commissioner should periodically inspect the line to see that the health conditions of the labour force are satisfactory and to make any recommendations that may be found necessary.

6. The Committee will record their opinion and report to the Engineer-in-Chief for Railways sending a copy of the report at the same time to the Chief Secretary to Government.

7. Among other things, the Committee should consider the possibility of water logging in the area due to the interruptions of the natural flow of water by embankments, canals, etc., and advise upon the best means of avoiding such possibility.

8. Procedure similar to that outlined in the preceding paragraphs should be adopted in case of large public works, other than railways, the officer responsible to convene the meeting and to obtain the advice of the Committee being, in this case, the Chief Engineer, Public Works Department.

9. As soon as construction of a large work is decided upon, a meeting of the Committee should be convened and proposal formulated. Work may be started pending Government Orders, but the arrangements from the very commencement of the work should be in accordance with the proposals.

10. In the case of large works controlled and managed by private agencies, the Sanitary Commissioner should, in consultation with the Senior Surgeon, take such steps as are necessary to ensure proper medical and sanitary arrangements during the aggregation of labour.

11. When there is reason to believe that the health of the people of a particular town or village is prejudicially affected by the existence of borrow pits or by serious obstruction to the natural drainage of the area, the Sanitary Commissioner may arrange for a careful investigation of the conditions with a view to furnish advice to the local authorities on the necessity or otherwise for filling up the borrow pits or draining the excavations. When a scheme is proposed in this direction likely to impose expenditure on the Railway, the requisition to the Railway authorities to carry out the drainage or reclamation should be made by the local authority with the previous sanction of Government.

12. In cases where a large labour force is stationed permanently or for a long time at any place in connection with large industries, it shall be the duty of the Sanitary Commissioner, to make inspections from time to time and bring to the notice of Government deficiencies, if any, in the Sanitary arrangements made and in the conditions under which labour is housed and controlled.

By Order,

B. RAMASWAMIYA,

Secretary to Government,  
Revenue Department.